

BULLETIN No. 51

The Great Western Railway Of Canada

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A few years ago the author of this bulletin began sending your Editor his notes relative to the locomotives of the Great Western R. R. They were meticulously arranged according to groups and the notes and discussion were extremely full. Of the many Canadian railways, but little has appeared on this road. Doomed to failure at the outset because of broad gauge construction required by the Canadian authorities, the road made an important link in the east and west business of our American roads bordering the Great Lakes. Its motive power represents a variety seldom found in America—Canadian, British and American builders. Amalgamated with the Grand Trunk in 1882 the road soon lost its corporate identity as an independent carrier. Idle speculation is useless now, but had the road originally been built standard gauge it might have either continued to survive until more recent years or fitted into the Vanderbilt consolidation—thus eliminating the former Canada Southern. However, while it served lower Ontario the road played its part well despite many handicaps and to Mr. Spriggs, the author, we wish to extend to him our commendation for his having produced such an interesting history after many years of research.

Cover Design

Again we are indebted to our artist and fellow member, Mr. J. Henderson Barr for his cover design. The subject, of course, is a Great Western Ry. locomotive and train but the particular locomotive happens to be the "Wentworth." There is something appealing in the sight of one of these old timers passing with their train. There was not the thunder and roar of the sharp exhaust of the modern train, but with their big headlight, flaring stack, flashing side rods and gay colors with the perfume of the fragrant wood smoke, they made a never to be forgotten sight. Times have changed and we have advanced but our artists can depict the days of yesterday.

The Switchkey

Under this name a group have announced a new publication. The Editor is one of our members, Mr. Linwood W. Moody of Union, Maine, the publishers are Messrs. Edward L. and Paul W. Kaseman of Wheelerville, Pa. It is planned to issue a magazine about 8x11" in size and the articles will be devoted to current and historic railroad material. A 60 pound glossy paper will be used throughout, both for the printed material and the illustrations. Advertising will be accepted. Any of our members wishing further details are urged to get in touch with Linwood W. Moody, P. O. Box No. 144, Union, Maine.

Bulletin No. 33

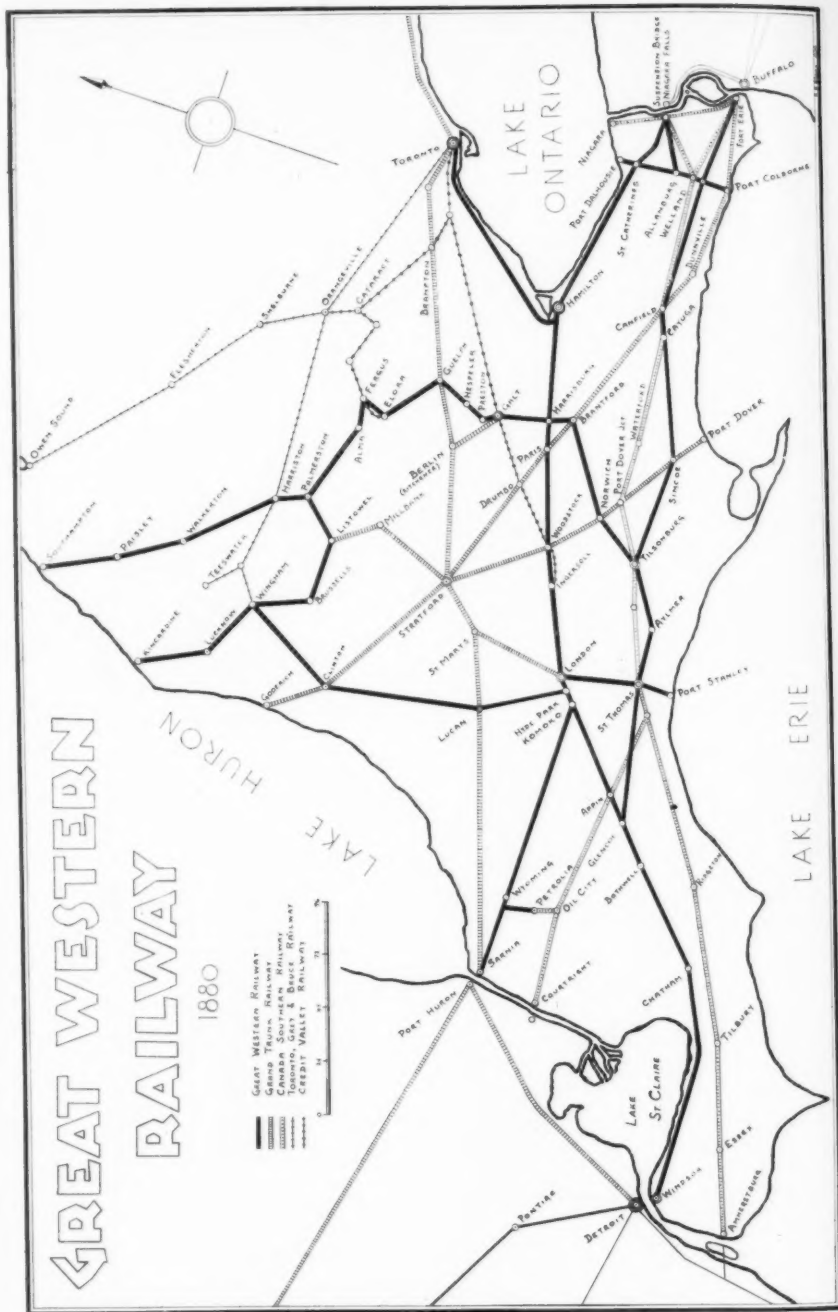
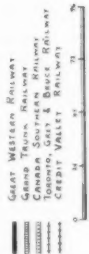
In preparing the material for our Annual Report, your Editor overlooked the fact that we have on hand a limited number of copies of this bulletin entitled—Lincoln on the New Haven and Boston & Albany Railroads. Copies may be procured from your Editor as long as the supply lasts.

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GREAT WESTERN RAILWAY

1880



Great Western Railway of Canada

Some Particulars of the History of the Road and its Locomotives From its Commencement to its Amalgamation with the Grand Trunk Railway in 1882

By W. M. SPRIGGS

Tackabury's Atlas of the Dominion of Canada, published in Toronto, Ont., in 1877, says,—

"On the 6th March 1834, an Act was passed by the Canadian Legislature to incorporate the "*LONDON & GORE Railroad Company*."

"A number of prominent public men of those days were among the Corporators. Powers were taken in the Charter to construct a single or double track, wooden or iron railroad from London to Burlington Bay, and also to the navigable waters of the River Thames and Lake Huron, and to employ thereon either the force of steam or the power of animals or any mechanical or other power." "Capital was to be £100,000 (\$400,000). Time for completion of the road was limited to twelve years."

"Nothing was done under the powers granted by this Act."

"In 1845 when it was about to lapse an Act was passed, reviving the Act of 1834 with amendments, one of which changed the name of the Company to,—*The GREAT WESTERN RAILWAY COMPANY*;

"Powers were taken to build the line to some point on the Niagara River, Capital was increased to \$6,000,000, and time allowed for completion of line extended to twenty years."

"In 1846 an Act was passed appointing a committee in England to protect the rights of the British shareholders."

"In 1849 the 1846 Act was repealed and the Canadian and English subscribers were placed on the same footing."

Charles B. Stuart, Chief Engineer, in his report of 1st September 1847, to the Directors of the G. W. R. says, (after referring to the proposed location of the railway and its connections with United States railways.) "It is a single track with turnouts at proper intervals, road bed to be covered with coarse gravel or broken stone 2 feet in thickness, in which white oak ties, 6 inches by 12 inches by 8 feet long are imbedded at intervals of 30 inches centre to centre. On these ties is spiked an iron rail 70 pounds to the yard, on the Central Division and 60 pounds to the yard on the Eastern and Western Divisions, and on the Sarnia Branch, these rails are firmly secured at the joints by cast iron chairs of 25 pounds weight. A substantial fence 5 feet high, on both sides of the track."

"The Great Western Railway is now under contract from the site of the Suspension Bridge to the City of Hamilton, it is also located from Hamilton to Windsor, where it will connect with the Michigan Central Railway now operating 146 miles West of Detroit."

From the Canadian National Railways Magazine July 1937.—"The breaking of the ground for the Great Western Railway took place at London, Ontario, and an old programme of the celebration says that,—

The GREAT WESTERN RAILWAY

Order of Procession for the breaking of the Ground.

on Saturday 23 October 1847.

(then follows a long list of the different companies, Military, Music, Freemasons, Sheriff, Judge Warden, the President & Directors of the Company, also Engineers and other Officers, &c &c.)

Tickets for the stand above the spot where the ground is to be broken, 7½ pence each, to be obtained at Mr. Craig, Dundas Street, 6 persons 2/6. The procession will start from the Court House at one o'clock P. M."

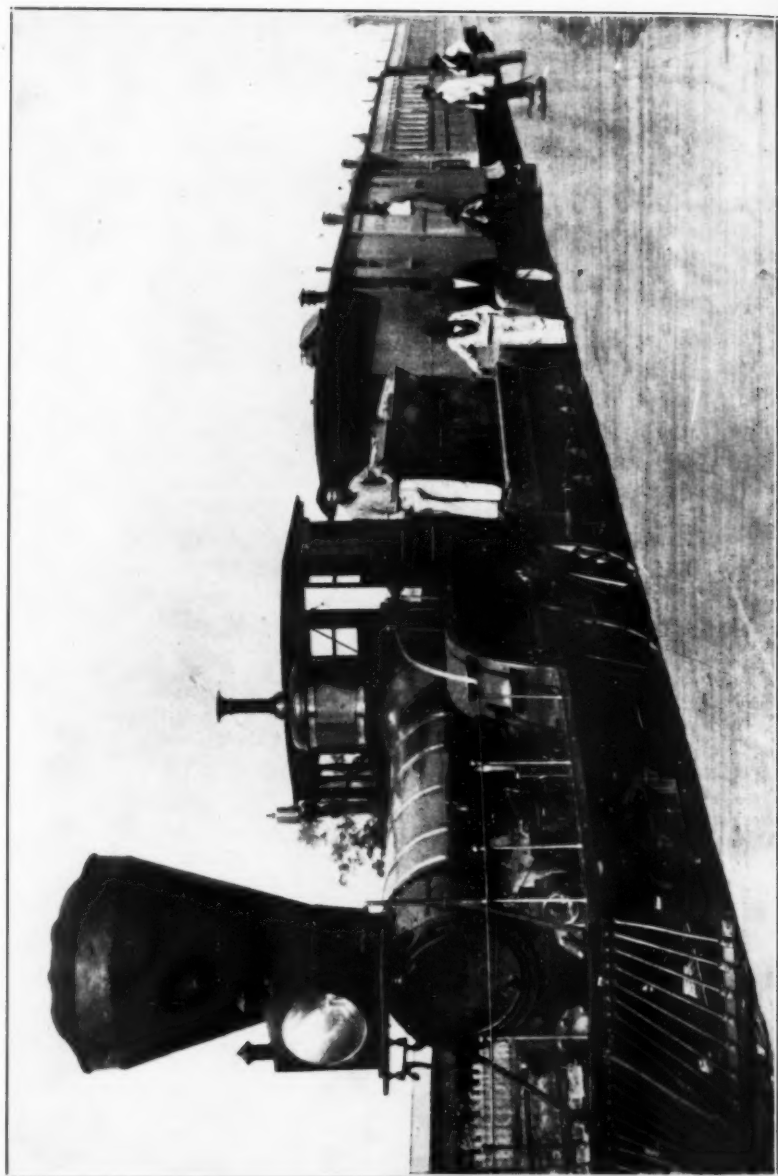
Mr. Stuart (who was apparently Engineer to the Lockport & Niagara Falls Railroad as well as to the G. W. R.) reports to the Directors of the Lockport & Niagara Falls Rrd on 1st Feb 1849: "On proposed railway from Lockport to Rochester, commencing at the Falls of Niagara, at the terminus of the Niagara Falls & Buffalo, and of the Great Western Railways, (connected with the latter by the Suspension Bridge over the Falls), the railway running to Lockport and on to a terminus in the City of Rochester."

"The Completion of your road simultaneously with the Great Western Ry and the railway from Lake Michigan to Galena, would at once form the last links in the greatest continuous chain of railway communication in the world."

(Mr. Stuart mentions that a Macadam road is being built from the Falls to Hamilton and it is nearly completed, and also that it is being continued beyond Hamilton. Further on still towards London it is continued in a good plank highway.)

A Railroad Celebration was held in Boston on the 17th, 18th & 19th September 1851. Upon the completion of the various lines of railway which connect the Canadas and the Great West with tidewater at Boston. A special committee was appointed with the Mayor and eight Aldermen and the President and thirteen Members of the Common Council twenty-three in all, which committee reported "that in their opinion, the time has come when the Great Western Railway of Canada may be completed, provided that the parties who are interested on the American side, will lend them aid by a subscription of stock to the amount of one million dollars."

On the question of the 5 ft 6 in rail gauge, some sources state that the use of this gauge was caused by an attempt on the part of the Legislatures of Upper and Lower Canada to render more difficult an invasion of Canada by the United States, but on the other hand it is stated that when the Canadian, St. Lawrence & Atlantic Ry and the American section of that line viz the Atlantic & St Lawrence Ry, between Montreal, P. Q. and Portland, Maine, were being promoted, the Portland supporters, were so anxious that their city should have a monopoly of the transportation to Montreal, that they urged the 5 ft 6 in gauge to prevent Boston from sharing in the business. (Boston I believe being served already by some lines of the 4 ft 8½ in gauge.)



G. W. Ry. "Essex" on Canadian side of the Suspension Bridge. Built by Lowell Machine Shops, 1853.

Personally I agree with Mr. John Loye in his interesting articles on the Grand Trunk Ry. in Bulletins 18 and 25 in which he intimates, "that from particulars on record the views of the British Military Authorities carried considerable weight, their idea being that the 5 ft 6 in gauge was half way between the 4 ft. 8½ in gauge of the Eastern United States railways & the 6 ft of the Erie Railroad in the West, and that this 5 ft 6 in gauge would materially hinder any attempt at an invasion of Canada by the United States."

Mr. R. R. Brown in his interesting article on "The Battle of Gauges in Canada" in Bulletin No. 34 gives further information on the causes which led up to the gauge controversy and he confirms the opinion that in addition to the military influence with the Government, the rivalry between the cities of Portland and Boston for the possession of transportation business between Montreal and an ice free port on the Atlantic, had a great deal to do with the question. Portland having already embarked in conjunction with the Canadian Railway the St. Lawrence & Atlantic in a 5 ft 6 in gauge line to Montreal.

Mr. Brown also gives a list of the more important witnesses and their opinions when they appeared before the Committee appointed to go into the Canadian Gauge question by the Royal Commission.

He gives the following 3 resolutions which were passed by the Railway Committee on 31st July 1851—

"1. That the question of the gauge to be adopted for the Grand Trunk Railway be now taken under consideration by the Railway Committee. Carried 9 for and 1 against."

"2. That in the opinion of this Committee the medium gauge of 5 ft 6 in is the most favourable to the interests of Canada and should be recommended to the House. Carried 9 for and 2 against."

"3. That in the opinion of this Committee, the said gauge of 5 ft 6 in should be adopted as the standard gauge for the Grand Trunk Railway and also that the Government should recommend its adoption by the Directors of the Great Western Railway. Carried 9 for and 1 against."

Mr. Brown in conclusion says that "The Great Western Railway, which was not restricted to any particular gauge by its charter, had decided on 4 ft 8½ in, but polite threats from the Government compelled the adoption of the Broad Gauge. This change practically destroyed the usefulness of the Great Western Railway and several years later a third rail was put down to accomodate the standard gauge cars of the New York Central and the Michigan Central Rys."

This Railway Committee which was appointed by a Royal Commission in 1845 to enquire into the most suitable gauge for Canadian railways apparently took from 1845 to 1851 to do anything, and in that year 1851 a large number of professional men were called up to state their views and opinions.

Many of the persons examined were not in a position to judge of the matter, but Mr. Harris, President of the Great Western Railway gave his opinion in favour of the 4 ft 8½ in gauge, which the G. W. R. had intended to adopt. His reasons in favour of the gauge were,—

1. Its established character.
2. Saving of money in buildings, ties, &c &c.
3. Saving of expense in running the machinery &c, for all time.
4. In order to form an easy and economical junction with the United States railways, he spoke strongly in favour of the Narrow Gauge, as did several others.

Other important men spoke in favour of the 5 ft 6 in, which certainly had some advantages, such as engines of greater size and power, and cars of considerably greater carrying capacity.

As far as one can judge the evidence seemed fairly equal on both sides. Anyhow, on the 31st July 1851, the Government of Canada after hearing the evidence, finally made its decision in favour of the 5 ft 6 in gauge, as the National Railway Gauge of Canada, much to the annoyance of the Directors of the Great Western Ry., who had made all their plans for a railway on the 4 ft 8½ in gauge.

I have devoted a good deal of space to this gauge question because it was of such vital importance to the Great Western Ry., and as Mr. Brown has said the insistence by the Government, of the wide or Broad Gauge practically ruined the Great Western Railway's chance of success. Even if the 5 ft 6 in gauge had been in every particular the superior gauge, it would have been absolutely useless to the G. W. R. which was essentially a link in the East and West transportation system between New York and Chicago, and this G. W. R. link had to be 5 ft 6 in gauge, and the rest of the chain, represented by the New York Central and the Michigan Central was 4 ft 8½ in.

I have not been able to find any account of ceremonies which may have been held on the opening of the railway, but as will be seen, the first trains are referred to in the Reports by the Directors. The Directors Report of the 5th June 1854, says:

"That after great exertions on the part of the Engineering Staff and the Contractors, the 1st Division of the line, Hamilton to Niagara Falls, 43 miles was opened with the first train on the 1st November 1853, and on the 10th November, trains began to run regularly. On the 17th December 1853 the 2nd Division between Hamilton and London, 76 miles was opened, with regular trains between Niagara Falls and London commencing on 21st December 1853. The 3rd Division, London to Windsor, 110 miles was opened 23rd January 1854, with regular trains on the 27th January, right through to Windsor, so that the railway was now able to take its place as a link in the great highway between the East and the West."

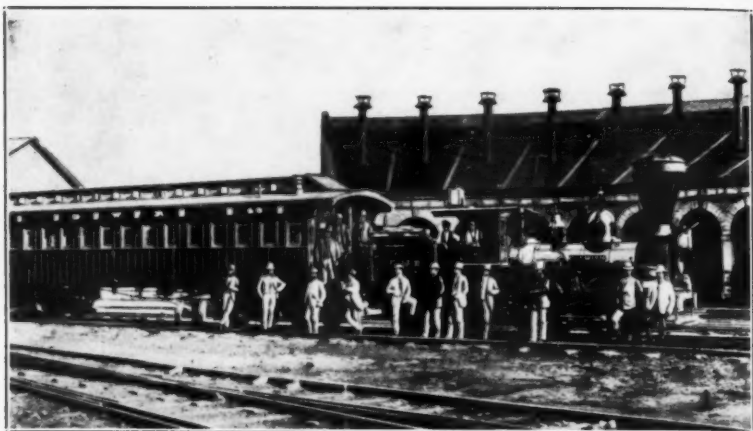
"The Galt Branch 12¼ miles was opened the 21st August 1854."

"The larger bridges on the line were generally wooden trusses from 100 to 160 feet span resting in most cases on stone abutments."

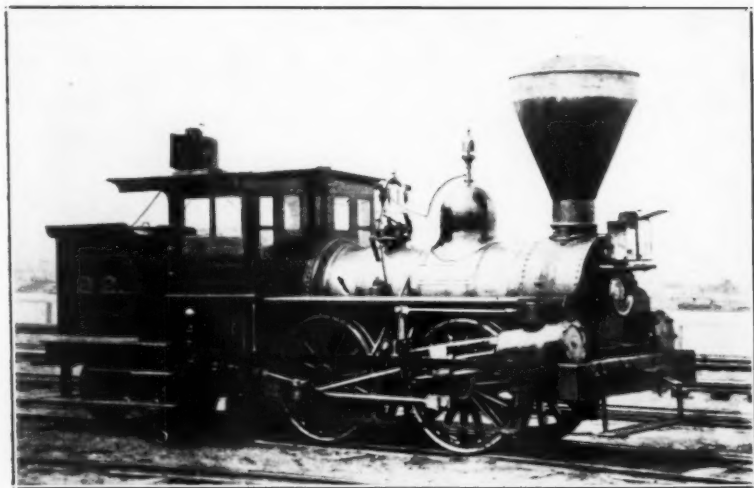
The railway was opened in a hurry in response to public demand and was not ballasted, but the ballasting was proceeded with as quickly as possible, with the help of 8 Ballast or Shunting engines belonging to the Company.

This working of the line in an unballasted condition during the Winter months, (although the Engineer stated that no harm was done)

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G. W. Ry. "Geo. Smith." Globe, 1853. Rebuilt by G. W. Ry., 1870.



G. W. Ry. "Gilson Homan," Globe, 1853. Rebuilt G. W. Ry., 1870.

was a great mistake, it caused the track to suffer great damage and displacement during the Winter. Owing to the intense frosts, the uneven track was the cause of many breakages to the locomotives and rolling stock and some serious collisions ensued between the regular trains and the numerous ballast trains, which were sandwiched in anywhere between regular traffic. About 15 collisions between ballast or construction trains and regular trains occurred between December 1853 and October 1854, some of which were quite serious, causing loss of life and great damage to rolling stock and track. The Ballast trains taking criminal chances in dodging in between regular trains, in the tremendous rush of getting the work done. Probably the worst accident of the kind occurred on the 27th October 1854, at St. Baptist, where a gravel train, engine "St. Lawrence" was standing on the main line without protection, when the Mail train, engine "Reindeer," running 7 hours late, collided with it. Fifty-two people were killed and forty-eight injured. The Conductor of the Gravel train was found guilty of manslaughter.

Also the fencing of the track was hardly begun, animals were constantly getting on the line causing another series of accidents.

At the Annual Meeting held 5th June 1854, the Directors announced that they had leased the railway portion of the Niagara Suspension Bridge then in course of construction.

This remarkable bridge, which is of considerable historical interest, and which has been the only Suspension bridge in the world to carry a main line railway in addition to a highway, and which carried successfully an increasing traffic for about twenty-six years was when proposed, and in its early stages regarded by the public generally as an entirely impossible and dangerous idea.

The bridge was designed by John A. Roebling of Trenton, New Jersey and built for the Niagara Falls Suspension Bridge Company. He was appointed Chief Engineer of this Company 16th Nov. 1850.

The undertaking was in connection with the Rochester, Lockport and Niagara Falls Railroad Co.

The main structure of the bridge was a set of four large cables suspended from four stone pillars or towers, two at each end of the span. These towers were eighty ft. high, and many years later in 1887 were replaced by steel towers, owing to the strains to which they were subjected causing the stonework to show signs of failure. The span between the towers was 800 feet and the height of the track above the river 215 ft. Each of the four cables were composed of 3640 No. 9 wires and were 10 inches in diameter. The elastic strength of these cables was 12000 tons. The bridge consisted of two decks, the upper of which had a single track railroad, (photographs of the bridge show a single track with two gauges, presumably the 5 ft. 6 in. of the G. W. R. and 4 ft. 8½ in. to accommodate the rolling stock of the United States railways) and a lower deck for a highway and sidewalk.

Mr. Roebling in speaking of the testing of the bridge, says:

"Last Sunday I opened the Bridge for the regular passage of trains. The first one was the heaviest freight train that will ever pass and was made up on purpose to test the bridge, with an engine, (said to be the "ELK" by the Amoskeag Co.,) of 28 tons, we pushed over from

Canada to the New York side, 20 double cars, (probably double truck cars) each loaded with 10 tons, the cars weighing 7 tons, making a gross weight of 368 tons, this train nearly covered the whole length of the floor of the bridge between the towers."

"Owing to the heavy gradient on the N. Y. terminus and the great roughness of the track which was just laid down, it took two assistant engines in front to get up this grade. The bridge settled under this large train, 10 inches, but everything returned to its place after the bridge was relieved. Yesterday the first passenger train from the East with three cars crowded inside and out and on top went over in fine style. No one is afraid to cross and the trains made a fine sight."

At a later date on 1st August 1860, Mr. Roebling made another test of the bridge and says: "The number of trains and single engines which at present time pass over the bridge in 24 hours averages about 45. This great traffic accounts for the rapid wear of the rails, many of which require renewal."

In these later tests, "a train composed of the engine "Essex" and tender of 35 tons weight, drew 10 empty cars across, also a small engine, (probably one of the shunting engines) took 2 loaded passenger cars, one baggage car and one loaded cattle car."

Mr. W. H. Breithaupt, C. E. of Kitchener, informed me that when he was assisting at the official testing of the Arch bridge which supplanted the old Suspension Bridge, in August 1897, he took the opportunity of making an examination of some of the wires from the old cable, he was surprised to find that when the wire was freed from the cable it at once sprang back into the curvature of the coil of the spool in which it was received from Birmingham, showing unimpaired resiliency, after what was considered as overloading, over a number of years. He also said that his Mother remembered that timid passengers were given the option of crossing the bridge on foot while the train crossed above them, but unless they crossed ahead of the train, one fails to see in what way they added to their security.

In the photograph of the bridge showing the railway track it will be noticed that the track is elevated above the floor of the bridge about 18 inches, and that there is no guard rail, so that in the event of a derailment (which fortunately never happened) nothing could have saved the train from toppling over on to and through the floor of the bridge.

The Arch Bridge (of steel) which took the place of the Suspension Bridge had two tracks and was therefore wide enough to enable the Engineers to avoid interruption of traffic, by building the new bridge around and enveloping the old bridge. As the old bridge would have been still serviceable for lighter traffic it was hoped to preserve it and erect it on another site, but the expense connected with the removal was so great that the idea was abandoned, and all the material of the old Suspension Bridge was scrapped.

This Suspension Bridge was of the greatest importance to the Great Western Railway, because it formed its only junction at its Eastern end with the railways of the United States. If the bridge had not been constructed it seems likely that the entire plan and design of the G. W. R. would have been different. The line would probably have terminated

at the East end of Lake Erie, with a car ferry to Buffalo and from that point would have run direct to London and on to Windsor. The connection from London to Hamilton and Toronto would have been in the nature of an important branch line, but with very little through traffic.

The first engine crossed the bridge on the 8th March 1855, and the bridge was opened for traffic on the 19th March 1855. It carried an increasing traffic for 42 years until the 27th Aug. 1897, long after the G. W. R. had ceased to exist. The rental paid by the G. W. R. for the use of the bridge was about £9300 per annum.

The Directors launched out with various undertakings, such as the building of branch lines, purchase of existing lines, a line of steamers, steam ferries, &c., &c., at very great expense and in many cases lost a great deal of capital.

The Hamilton and Toronto branch, 38 miles, was opened on the 3rd Dec. 1855, it was leased and worked by the G. W. R. and was shortly after amalgamated with that line. The Galt & Guelph Ry. opened on Preston 28th Nov. 1855. The two steamers "Canada" and "America" which the G. W. R. operated on Lake Erie and later on Lake Ontario, were a serious loss and had to be sold.

The Grand Trunk Ry. was rapidly pushing its way from Montreal into Ontario and Toronto and was established by the end of 1856. It became a very formidable competitor of the G. W. R. and although the Directors of the G. W. R. made many efforts to come to some sort of understanding with the Directors of the G. T. R. to avoid undue competition, the G. T. R. never showed any willingness to co-operate and adopted an aggressive attitude towards the G. W. R. which they kept up more or less until they finally forced the G. W. R. to agree to an amalgamation of the two companies.

The Steam Ferry service between Windsor and Detroit on the Detroit River was a very important link in transportation, but at the same time a very expensive item, especially in the Winter time in the early days before these steamers were powerful enough to act as ice breakers. The consequence was that, if the boats were held up by heavy ice the railway company had to arrange for the transfer of their passengers and freight across the river by means of sledges, as may be imagined there were periods when the heavy ice was forming and again when it was beginning to break up, that made it difficult to get across the river at all.

The Directors therefore decided to build a boat powerful enough to deal with ice however thick. This new and powerful boat was actually a paddle steamer, the hull was wood sheathed with iron plates well above the water line, to prevent damage by the ice, the paddle wheels were specially strongly built, with the idea that they would crush the ice as the vessel forced her way across. She was named the "Union," was 175 ft. long and 36 ft. beam, of 600 horsepower, and commenced service on 17th August 1857, she could take over a whole train load of passengers at one trip and was comfortably furnished with saloons and refreshment room, evidently a great advance on previous ferry boats.

An older boat the "Transit" was rebuilt and used as a freight and cattle boat. At this time a Telegraph Cable was laid under the Detroit River and proved itself of very great help in regulating the ferry boat traffic.

The building of the railway cost a great deal more than was expected. The first 239 miles, Niagara to Windsor had cost £2,705,264 up to April 30th 1854, and by 1857 the cost of 350 miles, including the 50 miles of the Sarnia branch under construction, and the 17 miles of the Guelph branch had cost £5,267,944.

Some idea of the difficulties of construction in those days may be gained from the fact that the rails, fastenings and other materials had to be imported from Great Britain, being sent over in sailing ships to Montreal, where they were transferred to schooners and other small vessels capable of reaching the ports on Lake Ontario and also Lakes Erie and St. Claire, being hauled from there by oxen and horses to their final destination over execrably bad roads.

Grading and laying the tracks constituted the most laborious kind of labour, all work being done by hand, with primitive equipment—picks, shovels and wheelbarrows. The "navvies" themselves came from the old country for the most part, as did the railway officials, the expert mechanics, engine men, fitters, &c., &c. For the construction work, the Contractors for the building of the road used the Company's locomotives, and these had a very rough time and needed heavy repairs afterwards.

The severe winters caused a lot of breakages to the rolling stock, together with the roughness of the road, and this together with the number of engines which were used in the construction work made quite a shortage of motive power in the early days. The Directors report in July 1854 that out of a total of 34 engines only 26 (not counting the 8 Ballast engines) were in working order. A number of engines were therefore ordered from England, as well as those coming from American builders.

Locomotive cost per mile at this time including repairs was one shilling and 3½ pence, engines averaged 37½ miles to one cord, of wood, which was increased by 1858 to 43½ miles to the cord, engines averaged about 15000 miles each per annum.

The car stock at this time consisted of 50 passenger and 736 freight cars of various types. One great disadvantage under which the car stock suffered during the first years of the railway, was that there was no shelter for cars which were not actually in use, and this constant exposure to the weather proved very injurious.

The roughness of the track and the lightness of construction of the early rolling stock were the causes of constant breakdowns and necessitated not only heavy repairs to engines and cars but in many cases a rebuilding and strengthening of the original design, especially of the cars.

A point which one cannot help noticing on going over the old records and the half yearly reports is the disadvantage of the Directorship and Shareholders being in England and the Management in Canada. Evidently the English Directors and Shareholders had no

conception of climatic conditions in Canada, and a great deal of expense might have been saved if they had been more closely in touch with these difficulties. They knew nothing for instance of the possibilities of a light improperly ballasted track being practically raised out of the ground by a period of stiff zero weather.

There are repeated references to the terrible winters. The following extract from the Directors Report of 31 June 1857, is a sample: "The Locomotive expenses at the rate of one shilling and 7½ pence per mile have been rendered heavy by the very severe winter weather during December and January. The breaking of wheels, tyres, axles and various parts of the machinery, nearly all caused by the extreme cold has been of daily occurrence and far greater than during previous winters, the intense frost and quantity of snow on the ground prevented the engines from hauling their usual loads and caused extra consumption of fuel, viz.—26893 cords of wood against 20969 of last half year, the price also was 8 pence per cord more."

With reference to this state of divided control in the working of the railway between England and Canada, I may mention that the early half yearly meetings took place in Canada with a Canadian Board of Directors who sent a report to the Shareholders Meetings in London, England, but the English shareholders were really the financial backing of the undertaking, and finally became so restive about what they considered the extravagant spending of the Canadian executive that they decided to have the management more in their own hands and from early in 1857 the Canadian Board was gradually superseded by the English Board and responsible practical men in Canada were left in charge of the working of the line. Mr. C. G. Brydges, as Managing Director, Mr. R. Eaton, Locomotive Superintendent, Mr. G. L. Reid, as Engineer, &c.

The rails used on the Main Line were of three patterns, viz—the Flange or T rail, with fished joints, weighing 65 pounds per yard; the U or Bridge rail weighing 66 pounds per yard, fastened at the joints with wrought iron plates, on which the ends of the rails rested, and were spiked down to the cross ties and bolted together with a bolt and nut. Also there were the light and heavy Compound rail weighing respectively 66 pounds and 80 pounds per yard. The two halves of these compound rails were rivetted together and spiked directly to the cross ties. On the Main Line at the time of the opening there were 34 miles of fished T rail, 156 miles of U rail, 23½ miles of light compound and 15 miles of heavy compound. All the sidings of which there were about 18 miles were laid with the common T rail weighing 62½ lbs. per yard with cast iron chairs at the joints. The G. W. R. in common with most railways at this time suffered severely from bad rails. By the end of July 1860, the track was so altered as to consist of 116 miles of fish jointed rails 65 lbs. per yard and 115 miles of U rails 66 lbs. per yard, showing that in 6½ years the whole of the compound rails and 43 miles of the U rails had been replaced by fish jointed rails. The Toronto branch was laid with fish jointed rails throughout. The U rails were of very poor quality and unsatisfactory.

The ties or sleepers were of White Oak and measured 9 feet in length by 9 inches by 6 inches and were spaced 30 inches apart from centre to centre. They had a life of about 8 years and cost in the early years one shilling and two pence each.

On the Suspension Bridge some special T rails were laid, these rails were 7 inches high and the weight of the rails laid on the bridge amounted to 25 tons, they cost £1075.

The Buffalo & Lake Huron Railway was opened in 1857 from Fort Erie to Stratford.

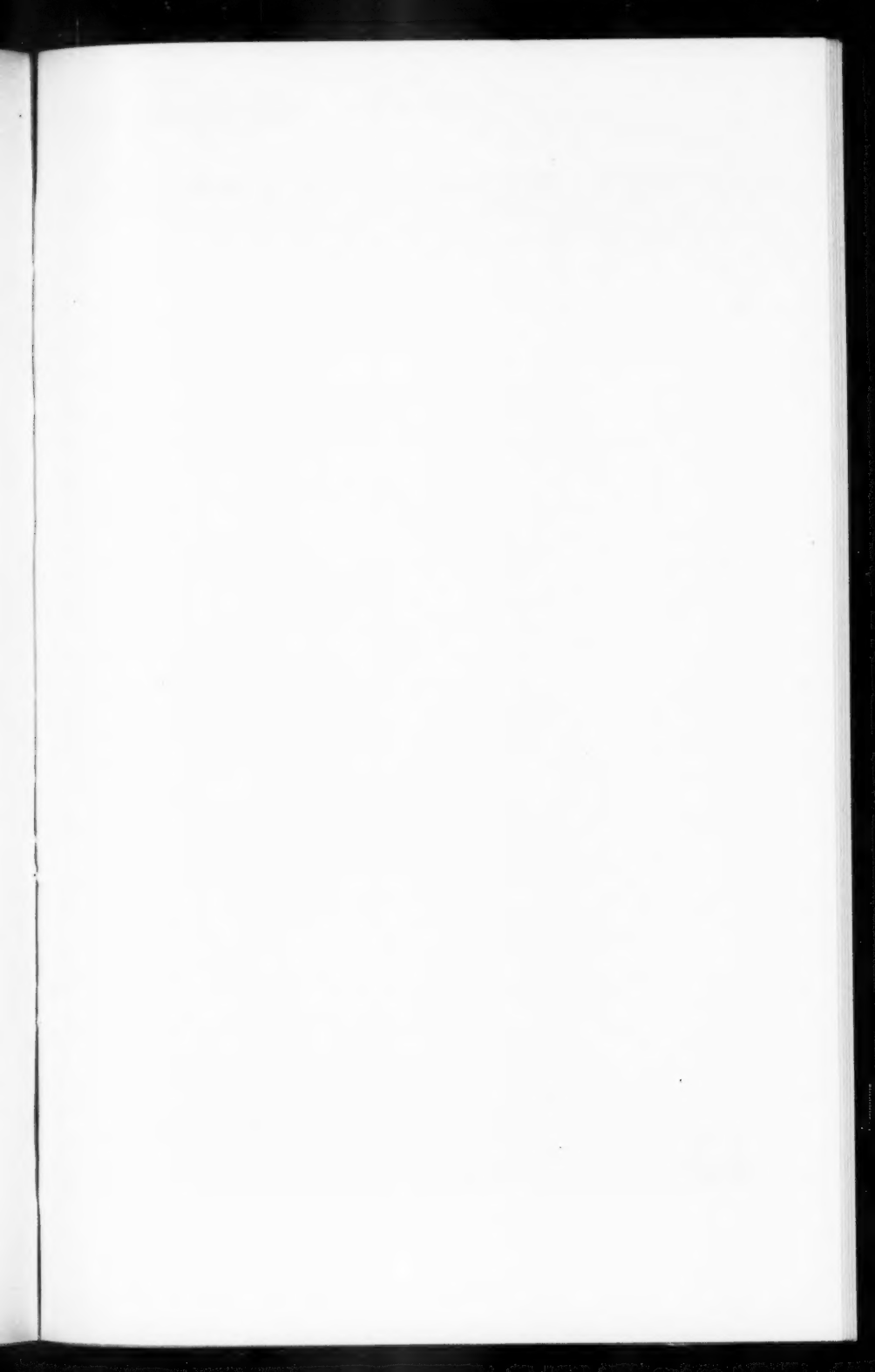
The buildings, bridges, viaducts were nearly all of wooden construction when first built, and were constantly requiring renewal and were of course subject to fires, which on occasion did considerable damage. The wooden bridges were gradually replaced by iron truss spans with stone abutments, the embankments also were widened from 15 ft. to 18 ft. at the top, as there had been some trouble with collapse of some of the earlier embankments.

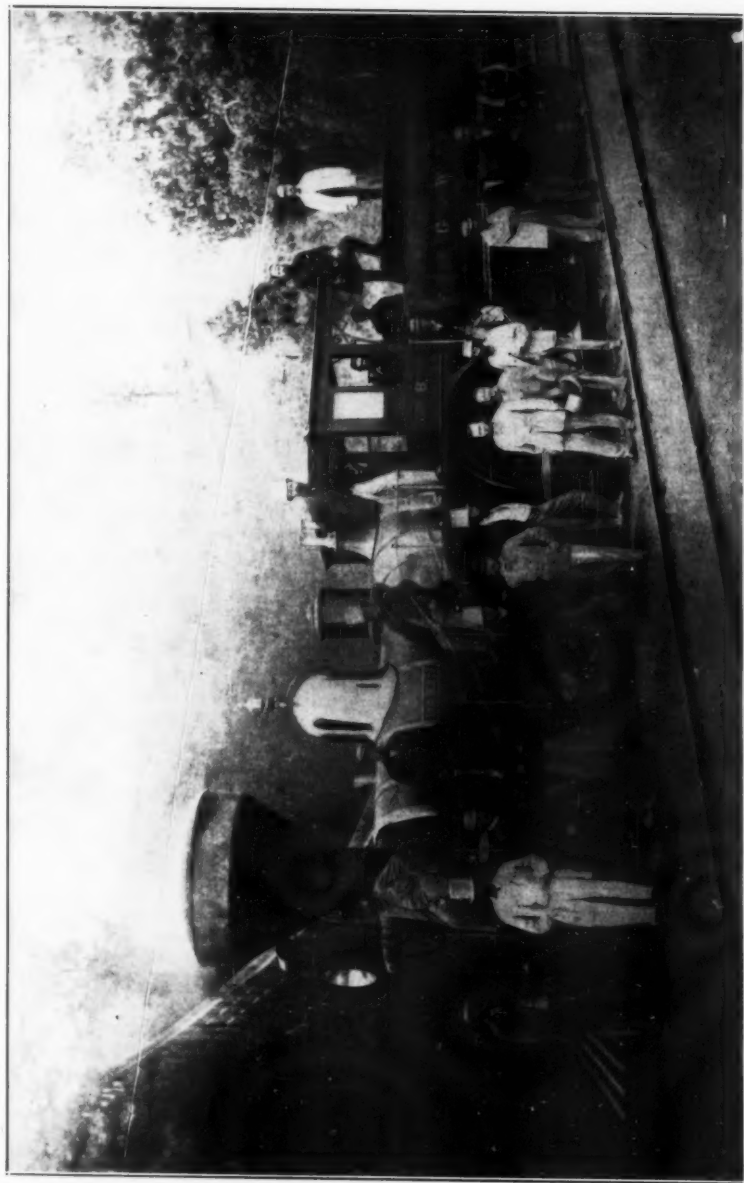
In connection with the subject of bridges it may be mentioned that in some cases it was necessary to have swing bridges over channels or canals to accommodate navigation. One such wooden swing bridge was the scene of a terrible accident on 12 March 1857. It was the bridge over the Desjardins Canal a few miles from Hamilton on the branch line between Hamilton and Toronto. The bridge was not at fault, but its light construction and the raised track 18 inches above the floor of the bridge, also the absence of guard rails contributed very much to the overwhelmingness of the disaster.

The afternoon passenger train from Toronto due in Hamilton at 5.45 P. M., was approaching the bridge when just before crossing, the leading axle of the truck of the engine "Oxford" broke by the right hand wheel, the engine lurched to one side and although going only a few miles an hour, it could not be stopped in time, it toppled over to the floor of the bridge, and broke through, falling on to the ice 60 feet below, and plunging into 9 feet of the icy water of the canal, the cars followed, almost standing on their ends and partly submerged. The unfortunate passengers were thrown down in a mass and were roasted to death against the heating stoves or were drowned outright, about 60 were killed and 20 or more injured. The accident cost the G. W. R. \$39,000.

By the end of 1856 the stock of engines had increased to 86 and the cars to 1786, the Directors decided to put in hand a scheme which they had in mind viz, to build their own cars, and built a works for that purpose. The Directors were also interested in the Detroit & Milwaukee Ry. and advanced £150,000 to complete it across the State of Michigan, also they decided for the G. W. R. to work the line Preston to Berlin 10 miles. The Grand Trunk Ry. by now was opened throughout, Montreal to Toronto, and a competitive era set in. Even in 1857 the ballasting of part of the G. W. R. Main Line was very imperfect.

On the 8th October 1857, the Directors say: "The last 5 years have been very prosperous with the number of immigrants which have arrived, now however, the ending of the Crimean War, (during which time Russian wheat was shut off from Great Britain), and the cessation of





G. W. Ry. "Dakin." Built by Schenectady, 1853. Rebuilt by G. W. Ry., 1864-6.

Men standing on Engine: W. A. ROBINSON, Asst. Mech. Sup't.; GEORGE FORSYTH, Gen'l Foreman Loco. Shops; WILLIAM MacMILLAN, Fuel Buyer; SAMUEL SHARP, Mech. Sup't.; JOHN ROBERTSON, Engine Driver; JOHN HALL, Foreman of Running Dept. WILLIAM PAIN, Fireman; Conductor and Penny, Attendant of Official Car. Men standing on ground: GEORGE L. REID, Engineer; WILLIAM WALLACE, Traffic Agent; Next two unknown; JAMES HOWARD, Purchasing Agent; THOMAS SWINYARD, General Manager; BRACKSTONE BAKER, English Secretary of Company; Unknown; JOHN WEATHERSTON, Track Sup't.; JOHN A. WARD, Mech. Accountant; PETER NEILSON, Station Master; HAMILTON and WILLIAM WILSON, Track Foreman.

railway and other public work in Canada, has given an effectual check to business and with a scanty harvest and a terrible winter, the condition of affairs is serious. The traffic has not shown a progressive increase for this company for the first time."

Everyone hoped for improvement, but the ruinous depression of 1857-58 was only beginning and the Directors report of 7 April 1858 says: "The great decrease in traffic as compared with the corresponding period last year requires some explanation. Since the date of the last report the commercial affairs of the American Continent have been shaken to their foundations. With few exceptions all the banks in the United States were compelled to suspend specie payments. A vast number of mercantile failures took place and for several months confidence was completely paralyzed and a wild and reckless panic existed from one end of the continent to the other. The natural result of this has been a complete prostration of business and when to this is added a continual decline in the value of the staple productions of the Country, it is not surprising that the traffic on the railways has suffered a very heavy decrease. Land values which were absurdly inflated must now fall to a point which can attract good class settlers who are badly wanted."

In confirmation of the above and showing how very serious the conditions were, the following extract from "Harper's Weekly" in 1857 is interesting: "It is a gloomy moment in history. Not for many years—not in the lifetime of most men who read this—has there been so much grave and deep apprehension; never has the future seemed so incalculable; as at this time. In our own country there is commercial prostration. Thousands of our poorest fellow citizens are without employment and without the prospects of it. In France the political cauldron seethes and bubbles; Russia hangs as usual like a cloud dark and silent, upon the horizon of Europe, while all the energies, resources, and influences of the British Empire are sorely tried in coping with the vast and disturbed conditions in China.

"Of our own troubles, no man can see the end. They are fortunately as yet mainly commercial; and if we are only to lose money, and by painful poverty to be taught wisdom—the wisdom of honour, of truth, of sympathy; and of charity no man need seriously despair."

The quotation is over 80 years old, and if the words "and Europe" could be added after the word China, it would apply almost exactly to the conditions of today in 1939.

The pound Currency in Canada had dropped to \$4.

The Locomotive Dept. report that for the half year the locomotive expenses are £61,206, miles run by trains 597,309, engine cost per mile one shilling and 7¼ pence. The stock of locomotives is 88, value £365,331, including tenders. The cars number 1798 and are of the value of £416,372, making a total of £781,703. Experiments with coal as fuel were being carried out, but no mention is made of the kind of coal or which engines were being used for the experiments.

Mention is made of the opening on 27 Dec. 1858 of the extension London to Sarnia 51 miles, also of the erection of a wheat Elevator at Sarnia to cost \$20,000, also an Elevator at Hamilton and a viaduct at St. Catharines, a steam hammer has been installed at the Hamilton Works.

In 1859 the conditions of trade and railway traffic were still very serious and made still worse by a rate war commenced by the railways of the United States.

In 1860 large payments were still being made on account of the Desjardins and Flamborough accidents, and no dividends were paid to the shareholders. The Galt & Guelph Railway became the property of the G. W. R. The Engineer reported that there were 56 miles of sidings and 388 switches.

The average dividend paid to the shareholders during the seven years was reckoned to have been equal to $4\frac{3}{4}\%$ per annum. The affairs of the Company in spite of this did not satisfy a large proportion of the shareholders and a Committee of Investigation was appointed. Further gloom was caused by the news that Passenger travel was very depressed, and that the cost of rerolling damaged rails was an expensive process, costing £6 per ton in Canada against £3 in England.

On the other hand at this meeting in April 1861, it was announced that "the harvest last year was a bountiful one, and that the "Earth Oil" (Petroleum) lately discovered in great abundance between our Main Line and the Sarnia branch, considerable quantities of which have been conveyed by the Company, is of great importance."

Mr. Brydges, Managing Director of the Company resigned his position owing to his appointment as manager of the Grand Trunk Ry.

Mr. Swinyard who was lately with the London & North Western Ry. of England was appointed Manager of the Company on 2nd Sep. 1861.

Towards the end of 1861, trade had a complete check owing to the Civil War in the States, all traffic having fallen off, financial affairs were very shaky and no dividend was declared. The Engineer is still complaining greatly about the quality of the rails, and the Directors decide on the erection of a mill in Hamilton for the purpose of rerolling old rails.

By 1862 the Civil War was causing still further disturbing effects, the suspension of Specie payments by the U. S. has caused considerable loss in converting American currency into Canadian funds.

One advantage which the Canadian and U. S. East and West Railroads derived from the war was that some considerable traffic down the Mississippi river was practically stopped, and this business fell into the hands of those railway companies who were in a position to deal with it, of which the G. W. R. had its share.

The growing importance of the "Earth Oil" district (which it was fondly hoped would rival the rising Pennsylvania oilfield) encouraged the Directors to advise the construction of a branch line or tramway to connect with the railway.

The very serious loss amounting to £7000 during the half year owing to depreciated value of American currency by this Company alone, suggested that the G. W. R., G. T. R., and the Buffalo & Lake Huron Ry. should combine, to obtain the prepayment of freight from Canada to the States, and a bill to permit this arrangement was before the Canadian Parliament, but it was rejected.

It is mentioned that "70 Passenger cars have been fitted with new lamps to burn the new Canadian Enniskillen "Earth Oil." It has been expensive, but the saving compared with the old system of burning candles is 90%. The new lamps are equal to 12 candles."

Mr. Richard Eaton, Locomotive Superintendent, resigned towards the end of 1862, and Mr. Samuel Sharp the Car Superintendent was appointed to take charge also of the Locomotive Dept.

It has been found impossible to raise freight rates, but there was a large increase in freight traffic. The rail question still continues to give trouble.

In 1863 the G. T. R. terminated the agreement with regard to competition, much to the regret of the G. W. R. Directors.

New bridges of stone and iron were built over the river Thames at Woodstock, Ingersoll and London, to replace old ones of wood.

During 1864, the President of the Company, Mr. Thomas Dakin, and Director, Mr. Thomas Faulconer, paid a visit to Canada and inspected the whole railway and its connecting lines. It was made evident to them that unless some drastic change was made in the facilities of transfer of passengers and freight between the United States lines and the G. W. R. that the G. W. R. was going to lose most of its valuable business with the United States.

The principal cause of trouble was the break of gauge between the 5 ft. 6 in. of the G. W. R. and Canadian railways, and the 4 ft. 8½ in. of the United States lines. This break of gauge had rapidly become such a cause of delay, damage to goods and inconvenience generally, that the United States railways concerned, were offering to help finance the laying of a third rail on the G. W. R. system to overcome this break of gauge, failing which they would have to find some alternative Narrow Gauge route in the United States south of Lake Erie, on the way to Chicago. Hoping to avert this probable loss of business the President on his return to England, strongly advocated this change, he said at the meeting of the 5th October 1864: "It has been clearly demonstrated to the Board that the future prosperity of the Great Western Railway of Canada under the existing circumstances of surrounding competition is inseparable from the promotion of more expeditious and economical transport of through traffic than at present exists. There are several measures in contemplation for accomplishing this object, but the first desideratum is the securing of an unbroken gauge, so as to avoid the delay and expense of handling freight consequent upon the double transshipment in its passage through Canada, by laying an intermediate or third rail between the Canadian rail gauge of 5 ft. 6 in. and thus provide the American gauge of 4 ft. 8½ in., as was originally intended when the G. W. R. of Canada was designed." The Engineer estimated that the cost of providing this third rail would amount to \$700,000.

The new Rolling Mill built by the Company at Hamilton, for the purpose of re-rolling old rails, commenced work in 1864, it was quite successful and turned out satisfactory work until the coming of the steel rail about the end of 1869, these steel rails were such a great improvement on the old iron ones, that they soon came into universal favour and the Company's rolling mill, which had been run by contract

by the American firm of Ward, Potter & Clement of Detroit and Chicago was finally closed on the 8th March 1872. An interesting comment by the Company's Engineer at this time says: "the rails from England have become very poor in quality and will not stand the cold."

Which is very similar to what he said in 1860, viz: "Also the fished rails are of much poorer quality than at first and will only last a few years. To make up time the freight trains frequently have to run at 30 miles per hour, caused by heavy traffic on a single line and then with coupled engines weighing with the tenders 54 tons each and having a weight of from 10 to 13 tons on each of the driving axles." I think that this throws a good deal of light on the condition of the track, that a freight train composed probably of 20 or 24 cars at 30 miles per hour was too much for it.

The Civil War in the States had been a time of great upset in many ways for Canada, and in consequence of border troubles, and difficulties, the United States Government instituted a passport system in 1864, which to a great extent put a stop on through passenger traffic between the Eastern and Western states of America, this system was fortunately removed on the 8th March 1865.

In this year, 1865, the City of Toronto granted to the G. W. R. the right of running a line along the Esplanade fronting Lake Ontario, of that City, to a new terminal station to be built at the foot of Younge Street. This was to be a great improvement on the old station at the West end of the city, which was out of the way and inconvenient.

The Erie & Niagara Railway from Niagara to Fort Erie on the Canadian side, opposite Buffalo, 31 miles, was worked by the G. W. R. This gave the G. W. R. direct access to Buffalo by a 5 ft 6 in. gauge line and connection at Buffalo with the New York Central and the New York & Lake Erie Railways. This line finished in the Fall gave the G. W. R. a route between Buffalo and Detroit 12 miles shorter than by the Buffalo and Lake Huron route.

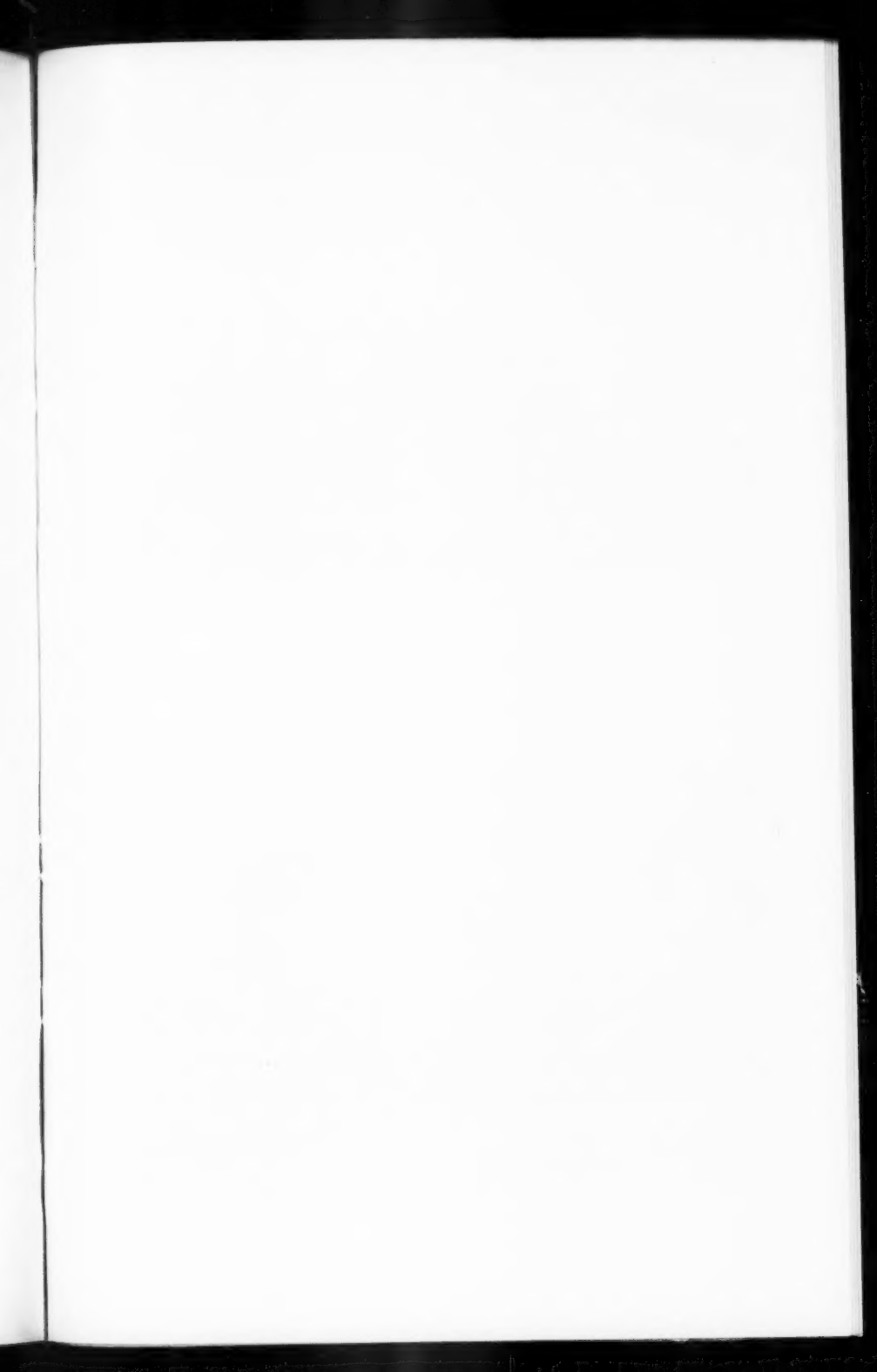
The Canadian Government at last agreed to pay \$124 per mile of railway, per annum, from the 1st September 1865, for mail service for four years.

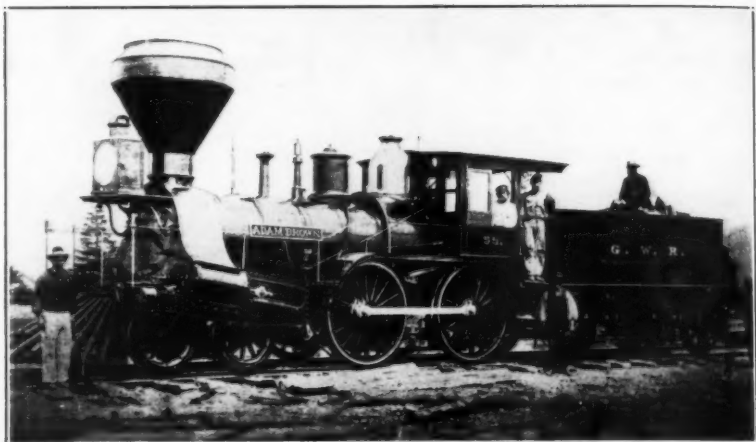
In 1866 the Directors were able to pay a dividend at the rate 5% free of Income Tax, owing to better conditions, but the Company still has serious losses over the conversion of American funds. The United States was still suffering from the results of the Civil War. "It is decided to lay down a third rail to accommodate the Narrow Gauge, (4 ft. 8½ in.) for the conveyance of American cars."

"The new rails for the N. G. which were ordered in England have begun to arrive."

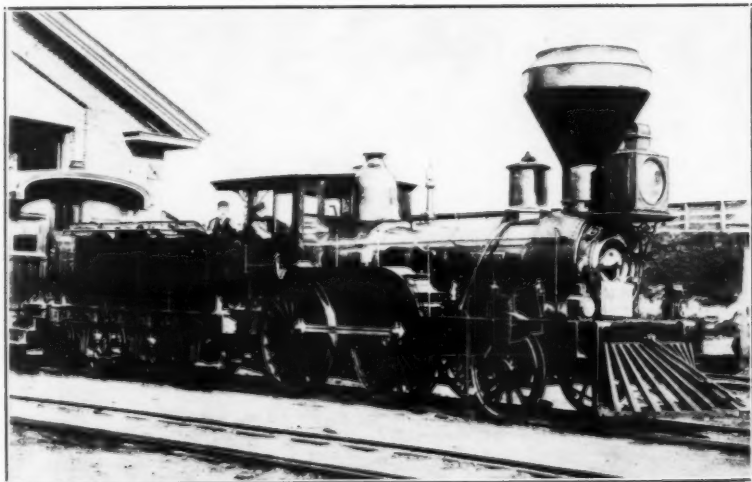
The new station at Toronto was finished and opened on 5th March, also the new iron built ferry steamer to carry cars has been launched. The Fenian Raid which took place from the States into Canada caused great disturbance to business in that locality. Another disturbing event was a great Cholera scare, and great precautions were taken to prevent it becoming a real menace.

"Seventy-five pound rails have been laid down on the Copetown incline near Hamilton in the place of the old 66 pound rails taken up."





G. W. Ry. "Adam Brown." Built by Peto, Brassey, Betts & Jackson, 1855. Rebuilt by G. W. Ry. 1870.



G. W. Ry. "Prospero." Built by R. Stephenson, 1856.

The Narrow Gauge rail between Suspension Bridge and Windsor was completed and opened for traffic on 1st Jan. 1867 and was quite successful, the cost so far has been £145,817. Two other important events also took place on the 1st January, one was the starting of a special line of freight cars, called the "Blue Line" for the conveyance of American freight on the N. G. of the G. W. R., the other event was the opening of the service of the new Car Ferry steamer named the "Great Western." This boat was larger and more powerful than the older ones, she will take 14 or 16 freight cars, of a gross weight of 280 tons at once and can be loaded or unloaded in a few minutes.

The Petrolia Branch, which extends from the Sarnia Line, a distance of $5\frac{1}{2}$ miles, Wyoming to Petrolia, into the heart of the most productive oil region of Western Canada, was opened for public traffic on the 17th Dec. 1866 and cost £10551 including road and stations. The harvest that year was a bountiful one, and hopes were expressed for increased traffic. It appears as if the harvest was getting to be a more and more important item of traffic. Unfortunately the 1867 harvest turned out to be much less than was expected, and this together with a continued rate cutting war of the American railways, together with a terribly hard winter (which caused a total interruption of traffic on 3 separate occasions during several days of snow storm and floods in March) resulted in the payment of a dividend of only 2%. These floods in March on the G. W. R. and also on connecting lines were very serious, coming as a last straw after the tremendously heavy snow storms of the winter. "On the 12th March 1868 the Thames river overflowed its banks near Prairie Siding and caused the destruction of the 4 ft high railway embankment, for half a mile by the torrent of water which swept across it, and the track will have to be raised 12 inches for one mile and have larger culverts."

In Jan. 1869 the Directors declared a dividend of $2\frac{1}{2}\%$ for last half year, they also announce that a Canadian company has been formed to construct an extension of the Galt & Guelph branch to the North where there is no railway. This new line is to be called the Wellington, Grey & Bruce Ry., and is to be ultimately extended to the shore of Lake Huron, the G. W. R. is to work the line, which will later on become a part of the G. W. R. system.

"In 1869 the low freight and passenger tariff rates arising from competition, have been continued by rival American railroads, and the North Shore route of which the G. W. R. forms the middle link has been obliged to adopt the same rates."

"The opening of the Pacific Railroad in the U. S. will bring the G. W. R. a considerable traffic between the Atlantic and Pacific coasts which was formerly conveyed by the Panama route. Passenger cars now travel through from New York to Chicago, where direct connection is made with the Pacific Railroad. The G. W. R. will participate in the advantages of 2000 miles of additional railway communication, west of the Missouri River."

"Reports were received at this time of a consolidation of the Erie; the Lake Shore & the Michigan Southern Ry. and the G. W. R. may consider joining such consolidation."

"The unbroken gauge established between East and West by the third rail over our system has developed a large grain business never before conveyed by railway, the timber trade also has benefitted."

"A special freight line has been established in connection with the Detroit & Milwaukee Rd by which freight is transported between Grand Haven and the Atlantic seaboard without transfer."

The auditors are not satisfied with the condition of the rolling stock and the valuation of same, an enquiry was promised.

The Engineer is still complaining about the quality of the rails and also of the expense of re-rolling owing to the short life of the rails. He strongly advocates and recommends the adoption of the new Bessemer Steel rails which he estimates will cost less than twice the cost of iron, and saying that it has been demonstrated that they have a duration at least 5 times that of iron.

"The wages of railway track men have been raised from 80 to 90 cents and one dollar per day, in order to check the wholesale emmigration of men to the Western States of the U. S. A. where railway men are so badly needed at the present time, this increase in wages will add £2054 per year to Track expenses."

In 1870 the Engineer reports that 1100 tons of steel rail, manufactured from hammered ingots, were laid on the Main Line, at the same time he again complains of the poor quality of the old iron rails.

No dividend was paid on either the common or Preference shares. This was the result probably of the great expense of mixing the gauge and working on two gauges at once, also working expenses were higher.

With regard to the Gauge question the following extract from the Directors Report of 28th Sep 1870, may be of interest,—“At the last session of the Parliament of the Dominion of Canada, a clause was introduced into an Amended Act which was then pending, whereby so much of the Act of 1851 as required the Company to construct the railway with a gauge of 5 ft 6 in, was repealed and authority given to alter the gauge to that of 4 ft 8½ in, as more convenient and economical. Preparations are now being made to take up the outside rail from Windsor to Komoka, 100 miles and to sell the worn out portion of the iron. The proceeds will be applied to the purchase of Narrow Gauge locomotives, of which 16 are ordered, and will shortly be delivered by American makers, also 5 additional engines are under construction in the Company's shops. The remainder of the outside rail on the Main Line and branches will be taken up as soon as the Broad Gauge locomotives are either converted to Narrow Gauge or disposed of.”

“Very great economy will result from working and maintaining a single gauge.”

“A company has been organized under the auspices of the G. W. R. by the title of “The Canada Air Line Company.” The capital has been subscribed, Directors nominated, surveys made, and plans &c prepared and the first section 38 miles has been contracted for. The Shareholders will be asked to ratify an agreement for an amalgamation of the Air Line Co. with the G. W. R.”

“Since the opening of the Narrow Gauge route over the Main Line in January 1866, the traffic has been hauled by Broad Gauge engines.

This system of a Mixed Gauge has not been found to work satisfactorily and it involves the maintenance and renewal of a triple line of rails."

The Company's Rolling Mill at this time, I believe, was working night and day, and producing good work. The Engineer reports "a number of additions in the way of machinery, comprising a train of puddle rolls and a rotary squeezer for shingling the puddle balls; hot shears for cutting the puddle bars; a stationary engine of 40 horse power, with two boilers for the same; and an extension of the main building to cover the new machinery. The erection of these additions to the Rolling Mill machinery formed one of the conditions of the contract entered into with Messrs. Ward, Potter & Clement of Detroit and Chicago in the month of March last. The contract is for two years and the firm undertakes to re-roll all the old rails with a very superior quality of American iron in the rail heads, at the rate of 27 dollars (£5-11-0) per ton, a satisfactory arrangement, producing rails which are sound and durable. Our position as a link in the chain of one of the most popular routes to the Western States, could only be maintained by adopting the same costly measures of improvement of our permanent way as have been adopted by the U. S. railways and this has been already accomplished to a large extent by the extraordinary expenditure of the last 12 months. It is intended to lay down in the track of the Main Line 3000 tons of steel rails during the half year now begun and this with the improved ballasting and drainage works on the track will help to place us on a footing of equality with the rival lines of the U. S. The steel rails already laid down are giving satisfaction."

At the beginning of 1871 the Directors declared a dividend of 6% for the past half year, and report "that 111 miles of the Main Line have been relaid with steel rails, or with the best of iron rails. During the past winter an increased traffic with great regularity and freedom from accidents, has been worked over the line."

"Since the last report the important policy of changing the gauge from 5 ft 6 in to 4 ft 8½ in, has been proceeded with, during the past half year the third or outside rail has been removed, leaving a single Narrow Gauge track between,—

Windsor and Komoka.
Hamilton and Suspension Bridge.

99¾ miles.
43¾ miles.

Also the gauge of the line between,—

Hamilton and Toronto.

37¾ miles.

has been narrowed from the 5 ft 6 in to 4 ft 8½ in.

The gauge of the Sarnia, Petrolia and Guelph Branches, 83¾ miles will be changed as soon as possible, so as to enable the alterations of all the car stock to be carried out, for the N. G.

The triple line of rails will for the present remain down between Komoka and Hamilton 86½ miles, where the remaining Broad Gauge engines will be kept employed until they are replaced by Narrow Gauge locomotives.

The Wellington, Grey & Bruce Ry, Harrisburg to Alma 50¾ miles is 5 ft 6 in only at present.

In December 1870 the track of the Hamilton-Toronto Branch 38 miles was successfully changed from the 5 ft 6 in gauge to the standard 4 ft 8½ in, by an organized force of trackmen, with an interruption to the traffic of only eight hours.

"The agreement between the G. W. R., Michigan Central and the Detroit & Milwaukee Railways has worked well. The G. W. R. has secured the through traffic from the new U. S. line, Port Huron & Michigan, 90 miles, Port Huron (opposite Sarnia) to Owosso, this route will shorten the East and West distance by 40 miles."

"The N. G. rail has been laid along the Esplanade at Toronto. On the 21st January a branch line was opened from Suspension Bridge to the City of Buffalo, constructed by the Erie Railway, affording a connection Eastwards by that line in addition to our present connection by the New York Central Ry. Also a short branch is being built from Harrisburg on the Main Line to Brantford 7½ miles."

"The new line from Glencoe to Buffalo, (chartered under the name of the Canada Air Line Railway) extends in a nearly straight line from Glencoe on the Main Line, (80 miles East of Windsor) to Fort Erie, on the Niagara River, opposite Buffalo 149 miles, where it will join the new International Bridge."

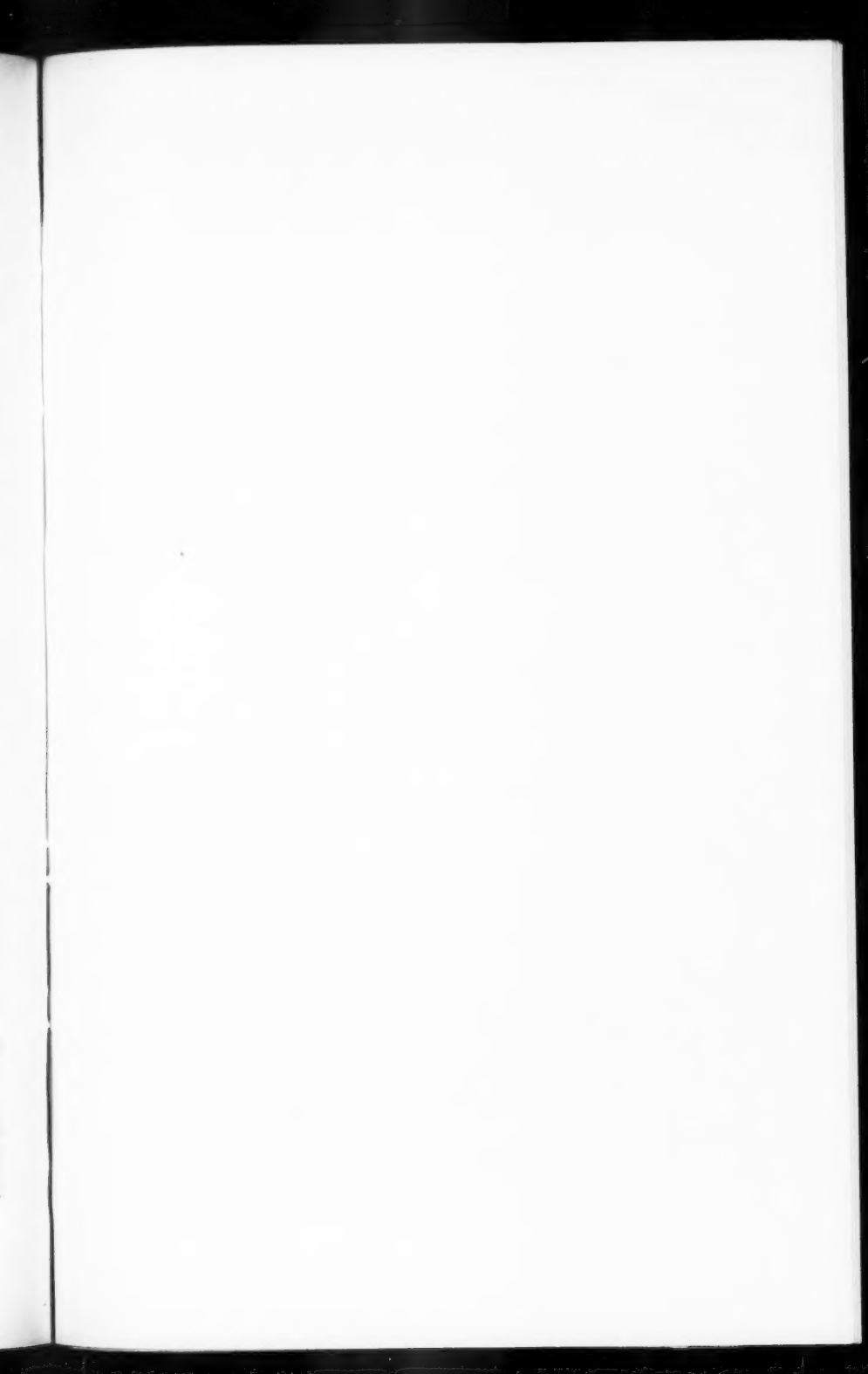
Two new Snow Ploughs built by the Mechanical Department cost £388-15-4.

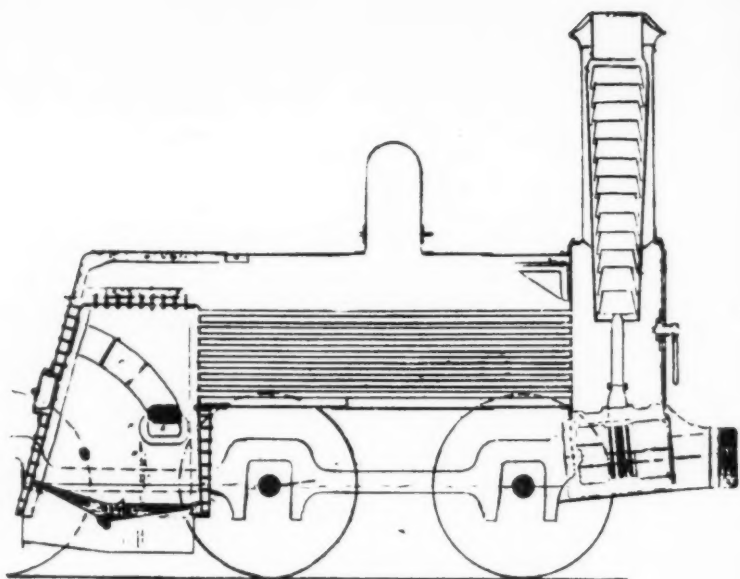
A dividend for the first half year of 1871 of 5½% per annum was declared. £5895 was paid for repairs and compensation for the Nith River bridge accident, this accident took place on the night of 5th June 1871, when a portion of the abutment and some of the wing wall gave way. (I believe one end of a truss went down into the river carrying part of a passenger train with it).

The steel rails were proving very satisfactory, and it was evident that they would eventually supersede the old iron rails. Unfortunately the grain crop has been a partial failure, which will probably have a bad effect on traffic later on.

During the past half year two Directors and the Secretary paid a visit to Canada and made a careful inspection of the Company's property. Difficulty is experienced in disposing of some of the Broad Gauge rolling stock, some of which is not convertible to the Narrow Gauge and yet is in fair working condition and too good to break up, it was therefore decided that the Broad Gauge rail should not yet be removed between Komoka and Hamilton, 86½ miles on which these Broad Gauge engines could work Narrow Gauge trains, another point which influenced this decision was the fact that there were not yet enough Narrow Gauge engines for the traffic."

At the meeting of 17th April 1872, a donation of £1000 was voted to the Relief Fund of that terrible catastrophe, the Chicago fire. 6% per annum dividend was paid for the last half year amount, £122,924. Great satisfaction was again expressed on the subject of the steel rails, and with the great improvements made in the road bed. The steel rails are being laid as quickly as the old iron ones wear out. "This new heavy steel track has enabled the Traffic Dept to conduct the heaviest half years business in the history of the railway, with despatch and





Eaton's Smoke Consuming Boiler.



G. W. Ry. "George Stephenson." Built by R. Eaton, G. W. Ry. 1860.

freedom from casualties and has diminished wear and tear on engines and rolling stock."

The above quotation shows what a benefit the steel rail and heavier track bestowed upon the railways, in the way of much heavier and more powerful rolling stock possibilities, and how the old weak iron track prevented these improvements, and kept down the speed of the trains.

By the 31st Jan 1872 the whole of the Company's car stock had been converted to Narrow Gauge. The G. W. R. arranged to purchase the Erie & Niagara Ry, 31¼ miles from Lake Erie to Lake Ontario along the Niagara River which has been worked by the G. W. R. since the Autumn 1866, Parliamentary sanction has been given for this purchase at £75,000.

Serious forest fires destroyed a great deal of railway fencing.

The experimental tunnel under the Detroit River is in progress and it was proposed if this was successful to construct a railway tunnel under the river to Detroit from Windsor.

At the meeting of 16th October 1872 a 6½% dividend was declared on the Ordinary shares for the half year.

"The old ferry steamer was broken up and a new boat of the same name "Transit" has been completed and placed in service, cost £14,707."

"The expenses of maintaining the extra rail for the Broad Gauge between London & Hamilton 76 miles, and the inconvenience of working the Mixed Gauge have determined the Directors to remove and dispose of the third or outer line of rails, and the entire system of the G. W. R. will then be of the uniform gauge of 4 ft 8½ in, the same as that of the United States. Some of the B. G. engines were however serviceable."

The President and Vice-President who visited Canada recently reported that the condition of the track and rolling stock is highly satisfactory and that with the use of the new Air Line and the increased rolling stock of the Company will be able to deal with all the traffic likely to offer.

An arrangement was come to with the London & Port Stanley Ry 27 miles, for the G. W. R. to lease the line for 21 years @ \$20,000 per annum, the line runs North and South and connects the Glencoe Loop Line at St. Thomas with the Main Line at London.

A scarcity of cordwood is mentioned and also the increased price, causing the Locomotive Dept to look to coal as the fuel of the future.

The proposed purchase of the Erie & Niagara Ry has been dropped, no agreement having been come to. In place of this the Board proposed that the Welland Ry, or rather the 15 miles of it joining the Eastern end of the Glencoe Loop Line with the Main Line at St. Catherines, shall be asked to grant running rights to the G. W. R.

An agreement to secure running rights over the Hamilton & Lake Erie Ry will also be submitted to the meeting. This road is in course of construction, and will run from the City of Hamilton to Port Dover, on Lake Erie. This agreement is made in conjunction with other railway companies, based on tonnage carried over it by each company.

Great difficulties were met with in the course of making the experimental tunnel under the Detroit River, large inrushes of water and sand took place causing considerable trouble, delay and extra expense.

On April 9th 1873 the Board declared a 6% dividend per annum for the half year. Great accumulations of ice hindered the Detroit River ferry boats. It was found to be necessary to leave the B. G. third rail down for the present between Komoka and Hamilton, so that the B. G. engines can continue to work N. G. trains, there not being yet sufficient N. G. engines.

Steel rails are being more extensively used over the system and the greater soundness is sensibly reducing the cost of upkeep. The first steel rails laid down three years ago on the heavy gradients are still wearing well, whereas the iron rails formerly used on the Copetown incline, failed before they had been twelve months in the track.

The traffic has increased so much in the last six months that it may be necessary to double the track of the Main Line from Windsor to its junction with the Loop Line at Glencoe 80 miles, and also to make more siding accommodation.

The Wellington, Grey & Bruce Ry was completed and opened for traffic on 29th Nov 1872, from Guelph to Southampton on Lake Huron, 102¼ miles, and was worked by the G. W. R. from the commencement.

The same working agreement was entered into for the South Bruce division of that line, from Palmerston to Kincardine, (also a port on Lake Huron) 67 miles expected to be completed by Fall of 1873.

A new line, the London, Huron & Bruce Ry was in course of construction, from near London on the G. W. R., Main Line and extending to Wingham a station on the Wellington, Grey & Bruce Ry, 70 miles.

On the Welland Ry the laying of the third rail for the 4 ft 8½ in gauge between the Main and the Loop lines has been carried out.

Immediately on taking possession of the London & Port Stanley Ry on 1st Sep. 1872, the change of gauge to 4 ft 8½ in was taken in hand and was completed in the following October.

The Detroit Tunnel project was abandoned towards the end of 1872, owing to the tremendous inrush of water and sand in several places, the tunnel had advanced 1200 ft from the Detroit side and 350 ft from the Windsor end. This was a great disappointment to the Directors who were anxious to have an unbroken line of transportation into Detroit, as there were occasions when even the powerful ice breaking ferry boats were delayed and even stopped by exceptional ice accumulations. It was a great many years later when the tunnel was finally accomplished.

At the meeting of 29th Oct 1873, a 4½% dividend for the half year was declared. Traffic showed a gross increase of £69,010.

Since the last report, two very important events have taken place, viz.—the outer line of rail for the 5 ft 6 in Broad Gauge between London and Hamilton, (which was left in the track until the Spring of this year, when the use of the Broad Gauge locomotives was discontinued) was gradually taken up and the last rail was removed in the end of June 1873, so that the Main Line and branches are now of the single and uniform gauge of 4 ft 8½ in.

The other event was the rapid replacement of the old iron rails by steel, only 30 miles of iron rails now remain in the Main Line at the end of last half year, and this 30 miles has now been replaced by steel, so that the whole of the Main Line and the Glencoe Loop Line is now laid with steel rails.

In this matter of the change of gauge, an operation which has taken place in many parts of the world and on many railways has generally been accomplished in a few days, sometimes only taking a few hours, was in the case of the G. W. R. an undertaking which took years.

The change took from 1866 when the first Narrow Gauge rails were laid, until the end of June 1873, when the last Broad Gauge rail was taken up. It may be noted however that with the exception of one small portion of the line, this change was accomplished over the whole system, by means of the third rail without any hindrance to traffic whatever. The exception was the branch line between Hamilton and Toronto, on which the third rail was not laid down, so that when the change took place in Dec. 1870, by narrowing the gauge of the rails there was a stoppage of traffic of only 8 hours as has been already mentioned. This third rail arrangement, although very expensive, was the only course open to the Company at the time, as they were completely unprepared with Narrow Gauge rolling stock when they had to make their quick decision to change the gauge, and the Broad Gauge locomotives by this means could easily haul the American Narrow Gauge cars.

The Government Inspector went over the Glencoe Loop Line as far as completed to Welland Junction 128 miles on 27th May and he reported favourably on its construction. An attempt was made to use the line in its unballasted condition but was soon given up. The full value of the Loop Line could not be realized until the Buffalo International Bridge was opened, and a direct connection made with Suspension Bridge.

"In order to permit the immediate use of the Loop Line for the through freight business via Suspension Bridge and at the same time utilize that bridge for traffic interchanged with the New York Central and Erie Rys, a short branch of 8 miles is under construction, from the Main Line Terminus at Suspension Bridge to the town of Allanburgh on the Welland Railway. By this branch a through connection will be formed from the Glencoe Loop Line with the Suspension Bridge, making the distance to Detroit as short as from the International Bridge and 5 miles shorter than the present Main Line between those points. This branch will be of great benefit to the Company through the easier gradients of the Loop Line and the saving of tolls to be levied on the International Bridge, which route however will still be useful for local and cattle traffic from the Main Line and also the Loop Line for the City of Buffalo.

The following changes in the staff were made, viz,—

Mr. Price, late Treasurer to be General Manager.

Mr. Muir, General Superintendent to have the duty of working the traffic.

Mr. Woodford, to be Assistant Superintendent, whereby he will be

responsible for the despatching of the trains, the distribution of freight cars, and the care of the Telegraphs.

Local management of the Main Line has been divided into 5 Sections, each with a Superintendent."

The President gave a very satisfactory report on the working of the railway and its relations with other companies, after his late visit to Canada, and he stated that no further extensions of the line are considered necessary or desirable.

Old iron rails taken up from the Main Line to make way for steel as also those of the third rail, were used where possible in branches and sidings. 15¼ miles of new sidings were put in, 7 miles of which were at the terminals of Suspension Bridge and Windsor.

Mr. Robinson, Locomotive Superintendent, reported that the iron ferry steamer "Great Western" after an uninterrupted day and night service of nearly 7 years, is laid up for overhaul in dry dock.

The new 4 car boat "Saginaw" built for ferrying between Sarnia and Port Huron has been temporarily in service on the Detroit River to assist in ferrying during the laying up of the "Great Western."

At the meeting of April 27th 1874 the President said that the severe financial crisis which had prevailed during the previous September had badly affected railway business in Canada and the U. S.

The Allanburgh Branch 9 miles, commenced on 19th August was opened on 3rd November 1873, this enables traffic from the Loop Line to be worked via the Suspension Bridge.

"The last section of the Glencoe Loop Line from Welland Junction to the international Bridge was completed and opened for traffic on the 15th December 1873.

The easy gradients of the Loop Line have enabled the Company to run trains of 27 loaded freight cars, during the winter from Windsor to Suspension Bridge with one locomotive, via the Allanburgh Branch, the largest number ever worked over the Main Line having been 24 cars and then with the assistance of a pilot engine at some points.

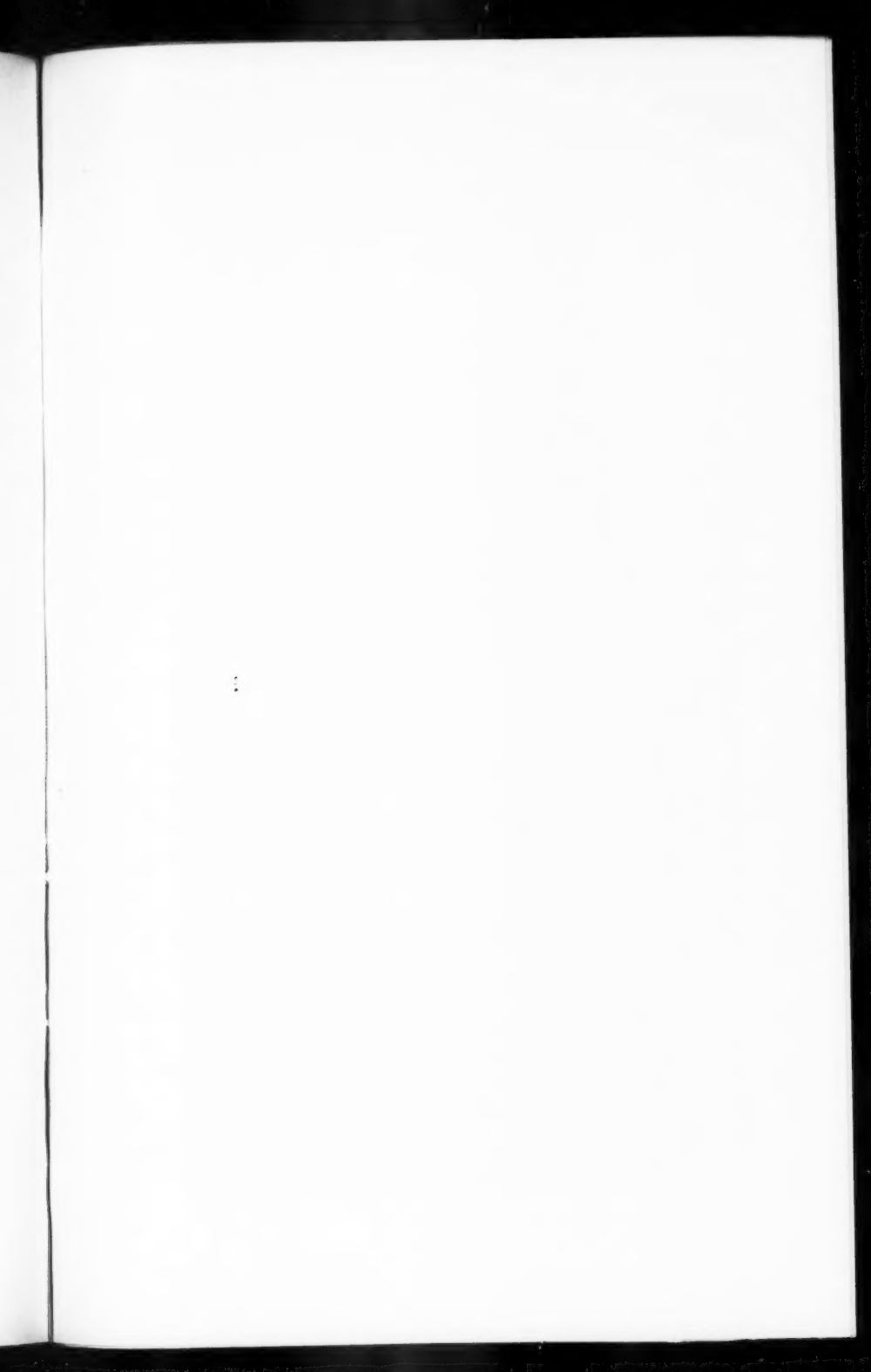
On the whole number of trains which have been run over the Loop Line since the opening of the Allanburgh branch, the 3 additional cars per train has been equal to the saving of 152 trains or nearly two trains per day.

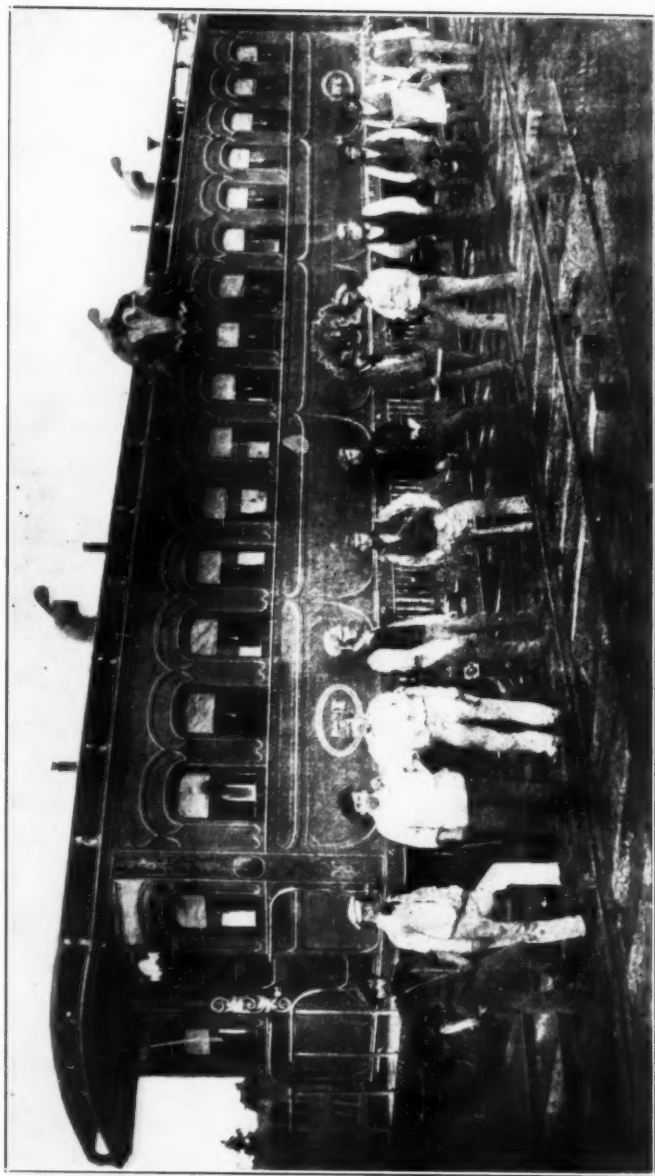
Thirty miles of iron rails have been replaced with steel on the Main Line during the last half year. The Toronto Branch 39½ miles is also being relaid with steel.

The Company leased the railway over the Suspension Bridge at Niagara in 1853, in perpetuity, there is now a dispute as to the legality of this lease. The Directors suggest that the whole property of the Bridge be purchased for a fixed sum.

Dissatisfaction expressed by some of the shareholders, on the condition and management of the Company had been gathering for some time, and the committee appointed to examine into the affairs of the Company was at work. Also the attitude of the Grand Trunk Ry towards the G. W. R. was not at all friendly and was getting worse.

Wood fuel for the locomotives is giving increasing trouble owing to its poorer quality and greater scarcity and higher price.





Car built at Brantford Car Works in 1860 for use of H. R. H., the Prince of Wales.

GREAT WESTERN RAILWAY OF CANADA

From the Engineer's Report.—dated 6th March 1874.

Table of lengths of Line and Sidings, on the Great Western Ry.

	Main Line miles	Sidings miles	Gross Totals. Standing room for cars on sidings miles	
Main Line, single track	149.75	106.74	76.58	{ Suspension Bridge to Glencoe Glencoe to Windsor Glencoe to Fort Erie Welland Junction to Merriton Allanburgh Junction to Clifton Hamilton to Toronto
Main Line, single track	79.25			
Glencoe Loop Line.	145.50		21.31	
Welland Railway	14.50	1.29	1.04	
Allanburgh Branch.	8.25	1.41	1.25	
Toronto Branch.	39.50	5.25	3.73	
Wellington Grey & Bruce Ry.	{ 111.00	11.08		{ Harrisburgh to Southampton Harrisburgh to Brantford Komoka to Sarnia. Petrolia Junction to Petrolia London to Port Stanley
Galt & Guelph Ry. 129.00	{ 15.50		7.66	
Galt Branch.	{ 2.50			
Brantford Branch.	8.00	.64	.42	
Sarnia Branch.	51.00	6.12	4.88	
Petrolia Branch.	4.75	3.25	2.58	
London & Port Stanley Ry.	25.00	2.39	1.95	
Gross Totals	654.50	166.84	121.40	

John Kennedy. Chief Engineer. Hamilton.

The passenger ferry steamer "Union" and the car ferry steamers "Great Western," "Transit," "Saginaw," and "Michigan" are all in good condition. The "Saginaw" has gone back to the Sarnia and Port Huron service. The "Michigan" is a new 16 car ferry boat, now in service.

A special General Meeting of the Shareholders was held on the 26th August 1874. Extreme dissatisfaction was expressed by some of the shareholders on the condition of the affairs of the Company.

The Committee appointed to go into the matter, recommended among other things, a complete change of the Board of Directors.

The President, Sir Thomas Dakin said that he had served the Company for 12 years, and that he had made 5 journeys to Canada, and had with the other Directors done their best, but considered that the present difficulties were beyond their control, as result of the financial panic in the U. S. However, after a heated discussion a vote was taken and practically a new Board was elected and the shareholders at once increased the salaries of the new Directors, before seeing what improvement they could make, which was rather hard on the old Board.

The new President, The Right Hon. Hugh C. E. Childers, M. P. at the Meeting of 13th Oct 1874, said he intended to visit Canada and advised the issue of further capital.

The Board made a provisional agreement with the Canada Southern Ry by which the C. S. Ry were to have access to the Niagara Suspension Bridge. No dividends were paid for the half year and a deficit of £8100 was shown in the accounts.

The portion of the double track between Glencoe and Chatham and also between Belle River and Windsor, 51 miles was completed. This was the first double track on the G. W. R. or in Canada.

At the meeting of the 30th April 1875 the President announced that he had been to Canada, and proposed to go again in the Summer. He found things not very satisfactory, especially the relations with the Grand Trunk Ry, though there was some improvement. Traffic had fallen off and the effects of the panic in the U. S. were still strongly felt. It is significant that subsequent to this visit of the President, Mr. Price the General Manager, Mr. John Kennedy, the Chief Engineer, and Mr. W. A. Robinson, Locomotive Superintendent, all left the service of the Company in the early part of 1875. No explanation is given for these changes, and no regrets are expressed.

"The gauge of the Grand Trunk Ry was changed to 4 ft 8½ in only last year, which has increased competition between the two companies to which must be added the activities of the new and larger steamers on the lakes."

"The Main Line, Loop Line & Branches, 513¾ miles are now all laid with steel rails." Height of overhead bridges above rail level 18 feet. 2640 ties per mile. Length of sidings 178 1/3 miles. Average speed of trains in 1875 was, Passenger Trains 26 miles per hour, Freight trains 13 miles per hour.

On 8th Oct 1875 it was reported that Mr. F. Broughton had been appointed General Manager, that the working expenses and the staff had been considerably reduced, and that steel rail life was estimated at 16 years, the cost of them reckoned at £3 per ton.

The construction of the London, Huron & Bruce Ry was proceeding and the line was expected to be opened soon.

"The President, the Right Hon. C. E. Childers, M. P. in speaking at the meeting of 8th Oct 1875, said it would be advisable to set aside a sum of £45,000 per annum from Revenue, to provide for the expense of rail renewals, and for bridge renewals, £15,000."

At Hamilton a brick Passenger station 350 ft. long and 40 ft. wide were nearly completed, more N. G. tracks have been put down at the London Car Shops.

The new Chief Engineer, Mr. Joseph Hobson, reported that "a half mile branch had been opened at Southampton on the Wellington, Grey & Bruce Ry from the station there to the new pier built by the Dominion Government in the harbour. On the Kincardine Branch, although great efforts were made with the most powerful snow ploughs and a large force of men, this branch remained closed from the beginning of February to about the third week in March and the line between Guelph and Southampton could only be kept open for light passenger traffic."

Mr. John Ortton, has been appointed Acting Mechanical Superintendent. *pro tem*.

The following items were reported at the meeting of 28th April 1876. "The London, Huron & Bruce Ry, 69 miles was partly opened for traffic in Jan 1876, total cost expected to be £170,000.

The President and Mr. George Cockburn spent the greater part of Feb and March in Canada and the United States.

About this time financial matters of the Company began to be expressed more often in dollars than in £—s—d.

An Act respecting the Capital of the G. W. R., and also the capitalization of certain charges and liabilities was passed 12 April 1876.

Most of the bridges on the Company's system were small spans up to 40 ft, a few were up to 100 ft and when replacements were necessary, iron bridges on the old abutments took the place of the old wooden erections. A proposal is being considered to build a new bridge at Clifton on Niagara River, a few feet North of the Suspension Bridge. The new bridge at Desjardins Canal being fixed, and not a draw-bridge, closed navigation to masted vessels on 14th Oct 1874, and the final instalment of this expense is now paid.

The maintenance of turntables has been handed over to the Engineering Department.

The President announced at the meeting of 12th Oct 1876, that he intended to visit Canada, that Autumn.

"There have been heavy losses in working the leased lines, and the decrease in earnings has been largely caused by low rates, owing to what is practically a rate war amongst the competing lines.

Relations with the Grand Trunk are unsatisfactory, they will not be bound by any arrangement of fixed tariff rates, and insist on a pooling of traffics which is not acceptable to the G. W. R.

Finally an arrangement was agreed to, but could not be depended on, until the disastrous rate war between the G. T. R. and certain railways of the U. S. comes to an end."

It may be noted that the G. W. R. Directors were willing to pool traffic with the G. T. R. which was actually competitive, but what the G. T. R. wanted in the interest of some large G. T. R. shareholders was to force the G. W. R. to accept a pooling of the whole of the traffic of the compact and fairly prosperous G. W. R. with that over the whole of the G. T. R. much of which it may be doubted had ever paid, which of course the G. W. R. could not agree to.

At the same meeting it was proposed by a few shareholders that the two railway companies should be amalgamated, but it was not carried.

The Directors report at the meeting of the 26th April 1877, was depressing. "The weather last Winter was extremely severe, for weeks the interchange of freight traffic with the United States railways in New York State was greatly interrupted and for some days ceased altogether. As many as 3000 cars were at one time detained between Detroit and Suspension Bridge, entailing a loss altogether to the Company estimated at £28,000.

The Company has also suffered very severely through the Rate War which is still going on between the Grand Trunk Ry and the U. S. rail-

ways. The ferry steamer "Union" was burnt during June 1876. The question of a freight rate agreement with the G. T. R. is still to the fore.

The Brantford, Norfolk & Port Burwell Ry from Brantford to the town of Tilsonburg 33 miles, was acquired by the G. W. R. for £10,000. The line will connect the Main and Glencoe systems.

A financial agreement between the G. W. R. and the Detroit & Milwaukee Railroad Co, dated 1st March 1877 was presented.

The Engineer, Mr. Hobson says, "The formation of an embankment instead of the existing wooden trestle bridge on the Toronto Branch across the Old Outlet of the Desjardins Canal, was begun on 10th Aug last and was steadily continued until the middle of September, and is to be completed before next winter. There has been great scarcity of labourers for working the construction trains for ballasting the London Huron & Bruce Ry."

"Last year a small fireproof building 30 ft long by 20 ft wide was erected near the General Offices at Hamilton for the safe keeping of the old books and records of the Company." (Note I wish I could have seen those old books and records).

The report presented to the meeting of 26th October 1877, was also an unfavourable one,—“Traffic still poor and rates low. Again a deficit has to be recorded in the accounts. An agreement has been arranged with the G. T. R. about rates and traffic.”

The President and Mr. Barkworth visited Canada and the U. S. and had conferences with the heads of the U. S. railroads which were satisfactory. A copy of the Agreement between the G. W. R. and the G. T. R. was presented to the meeting.

The Engineers mileage report,—

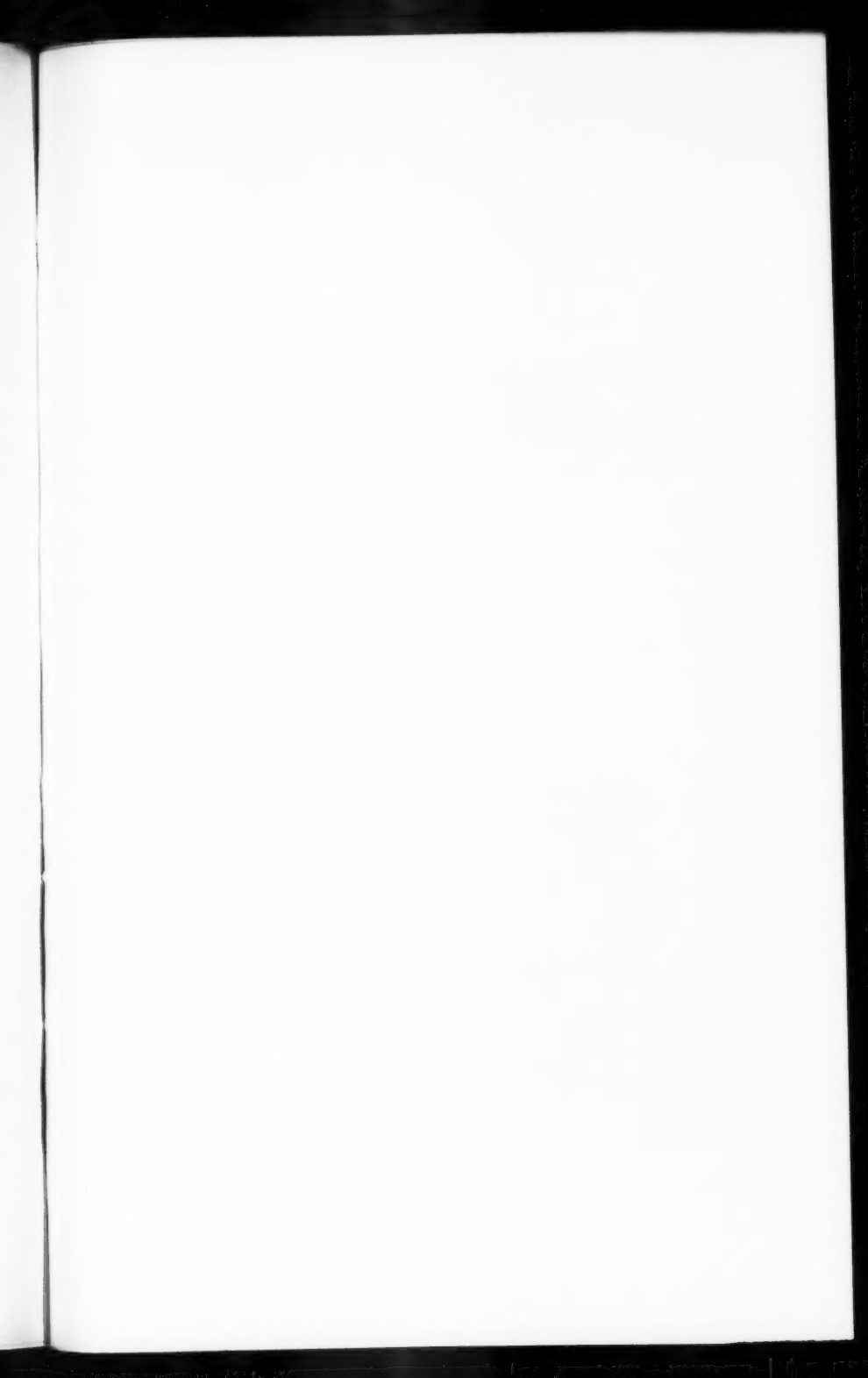
	Miles
Great Western Railway, proper,	590.07
Galt & Guelph Railway	15.25
Wellington, Grey & Bruce Railway	168.35
London & Port Stanley Railway	22.66
London, Huron & Bruce Railway	68.89
Total	866.22

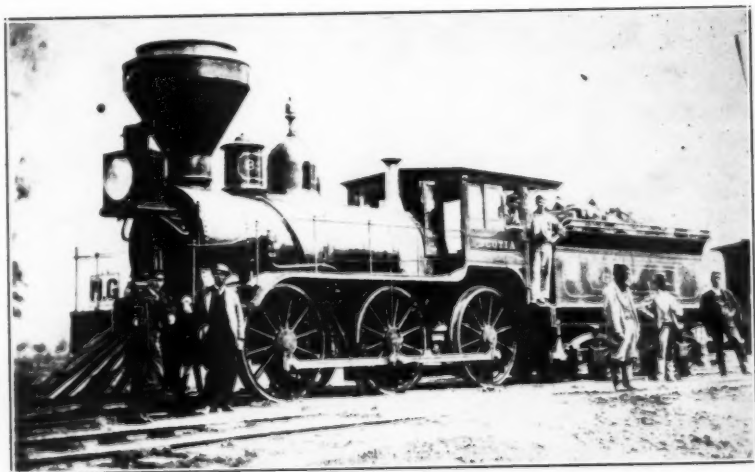
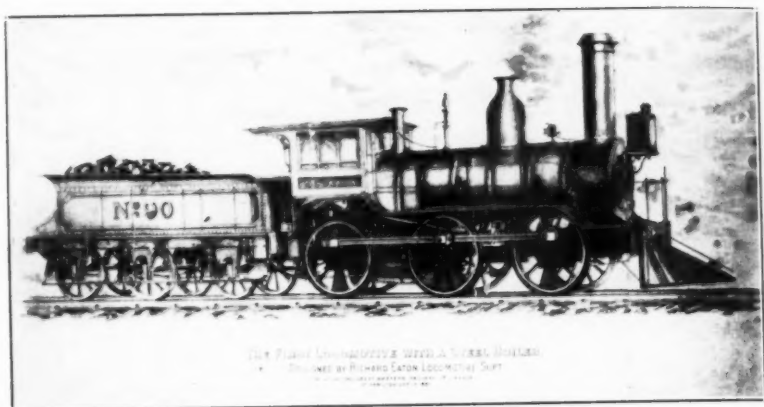
"The formation of the embankment across the old Desjardins Canal will be completed this year, the material for the embankment was obtained from the excavation for a loop line about $\frac{1}{4}$ mile long to join the Hamilton and Toronto Division with the Main Line. A new wooden Passenger station 47 ft by 20 ft has been built at the Welland Junction."

The report of the 30th April 1878, states,—“The raising of the embankment of the G. W. R. line at Jarvis, to allow of an under crossing for the Hamilton & North Western Ry cost £920 of which the latter contributed \$2000.”

"The Brantford, Norfolk & Port Burwell Ry is now being worked as part of the G. W. R. system, an accident to the bridge over the Grand River, somewhat retarded the opening of the line for regular traffic.

A new permanent drawbridge which was required by the Dominion Government, has been constructed over the Welland Canal at Welland Junction in consequence of the enlargement of the Canal.





G. W. Ry. "Scotia." Built by G. W. Ry., 1861. Shown in Service

The embankment across the old Desjardins Canal was completed on 15th Jan last and has since stood well. This is the heaviest filling in connection with bridge renewals on the G. W. R. system and one which was attended with the greatest risk owing to the great depth of the marsh across which it had to be carried."

"An increase in the price of sleepers (ties) owing to scarcity of suitable timber began to be seriously felt, but had to be met."

The Detroit & Milwaukee Ry in the hands of a Receiver, the G. W. R. had an agreement with the bond holders of the railway.

At the meeting of 31st October 1878, the General Manager is able to report a great reduction in the number of accidents, and that the staff is much more reliable.

The agreement of the G. W. R. with the Detroit & Milwaukee Ry. was confirmed and the D & M Ry was reorganized under the new name of the Detroit, Grand Haven & Milwaukee Ry and is to be worked as part of the Great Western Railway system.

Traffic arrangements with the Canada Southern Ry, which has also been reorganized, were completed, on 1st August 1878.

The Engineer reports that the "new drawbridge over the Welland Canal on the Loop Line was ready for the passage of trains on the 27th April, or 6 days before navigation in the Canal opened. The draw girders of this bridge are those which were formerly used at the Desjardins Canal bridge near to Hamilton, and which was converted from a draw bridge to an embankment. New stations have been built at East London and at Nixon."

Mr. Domville, Loco Superintendent, reports, "The engines and boilers of the steamer "Great Western" have been thoroughly repaired, two new paddle wheel shafts, and repairs to paddle wheels have been put in, and new boilers also are in hand for the "Saginaw."

The rate question was a disturbing factor again at the meeting of 29th April 1879, at which the President said,—“The rate question between competing companies is still in a very unsettled condition, the average rate received by this Company has been $\frac{5}{8}$ of a cent per ton per mile, which although an improvement on the preceding half year is considerably less than the average rate for the half year ended 31st January 1878.”

“Steel rails are now about the same price as iron rails.”

The Engineer reported at the same meeting,—“The double track iron superstructure built across the Desjardins Canal last year and the double track of the Toronto Division to the Hamilton Yard was completed, and in use since 12th Oct last. It does away with the necessity of employing day and night telegraphic operators and switch men at the old junction of the tracks, prevents delay of trains, and of course removes all risk of collision. The length of the extension is $1\frac{1}{2}$ miles. The short Loop Line at Burlington Heights on which the first train ran on 16th Sep last, was put in to connect the Main Line and the Toronto Division. It has been laid through the excavation from which the material was taken in 1877, for the formation of the embankment across the old outlet of the Desjardins Canal.

Trains can now run between Toronto and stations West of Hamilton without coming into Hamilton Yard, thus saving 3 miles.

The Brantford, Norfolk & Port Burwell Ry has been greatly improved, new sidings put in and the line extended from Tilsonburg to the Loop Line. This extension, opened 19th Dec last, completes another and valuable connection between the Main Line and the Loop Line."

A Special Meeting of the Shareholders was held at the Terminus Hotel, Cannon Street, London, England, on the 2nd October 1879, to consider a proposal to pool the net receipts of the Grand Trunk Ry and the Great Western Ry. Mr. Childers resigned the Presidency (presumably on account of his strong opposition to the idea of any amalgamation of the two railway companies.) Vice-President Lieut. Col. F. D. Grey, was elected President, who said that "the Directors saw no need of any material change in the policy of the Company, and hoped that the shareholders would put an end to this suggestion of amalgamation.

He declared that the policy of the G. W. R. had throughout been peaceful, it had never built a mile of road in a district originally occupied by the G. T. R. The policy of the G. T. R. on the other hand had been throughout aggressive. Repeated attempts have been made by successive Boards of this Company to work harmoniously with the G. T. R. Co, either by agreeing upon common rates in the territory which they jointly occupy, or by some other plans limited to the competitive traffic, but the G. T. R. has always been reluctant to treat on any basis which did not saddle this Company with liabilities in respect of the enormous length of the G. T. R. outside the G. W. R. system.

The Directors were anxious to stop antagonism between the two companies by an amicable division of all competitive traffic, the G. T. R. on the other hand insist on an immediate fusion of the whole net receipts of both companies, that is, they demand that the entire business of both companies shall be carried on by them in partnership.

The Board hope that the shareholders will support them in their temperate and prudent policy."

(Note, Originally the feeling of the shareholders was overwhelmingly against amalgamation, but at this meeting the shareholders were evidently not nearly so unanimous, judging by the attitude of the Board. Unfortunately there is no record of the exact outcome of this meeting.)

At the meeting of the 23rd October 1879, the report was to the effect that the half year had again resulted in a loss.

The Galt and Guelph Ry 15¼ miles in length is now incorporated with the G. W. R. The President being away on a visit of inspection in Canada the meeting was adjourned until the 11th December.

At the adjourned meeting on the 11th December, the President and two members of the Board reported on the results of their visit to Canada, their negotiations with U. S. railways, especially those represented by Mr. Vanderbilt went well, also a connection with the Wabash Ry was arranged. The Staff has been reduced and other economies put in hand, and the general opinion was that prospects were brighter.

A dividend at the rate of $1\frac{1}{2}\%$ for the half year was declared at the meeting held on 22nd April 1880. An increase in the traffic of 28% was shown, and an improvement in the rates, which however were shown to be still too low. The leased lines were still worked at a loss, but the Detroit, Grand Haven & Milwaukee Ry working was satisfactory. Mr. Brackstone Baker, who has been the Secretary of the Company for 26 years, retired on the 31st Jan last, his services were much appreciated and an annuity was voted for him amounting to £650 per annum being half his salary. Mr. Walter Lindley was appointed the new Secretary.

The following statistics give some idea of what the business of the Company amounted to, near the end of its career.—

682,421 Passengers carried during the half year.

12,286 Immigrants.

2,295,687 Miles run by 1st class cars.

1,172,977 Miles run by 2nd class cars.

965,577 Miles run by Post Office & Baggage cars.

20,475,558 Miles run by Freight, Platform & Conductors cars.

Rent for half year of the Niagara Suspension Bridge, £4835.

511.05 miles owned by Company & worked by Company's engines.

310.45 miles leased by Company & worked by Company's engines.

636,817 miles run by Passenger trains for the half year.

929,291 miles run by Freight trains for the half year.

The report of the meeting of 20th October 1880 was somewhat more cheerful. A surplus in the Accounts of £34847 was shown and a dividend at the rate of 1% or 2 shillings per share per annum was declared. Earnings of the Main Line & Branches only show an increase of £71662 or $19\frac{1}{2}\%$ over the same time last year. The leased lines show a deficiency of £15201. The Detroit, Grand Haven & Milwaukee showed better results and was able to pay a dividend of 3%.

The Capital of the G. W. R. was shown to be £11,534,690. The Engineer reports that the replacement of old wooden bridges, by stone or iron structures has been pushed during the half year, all over the system.

(Note: It is believed that some form of semaphore signal was introduced about this time, or possibly a few years earlier.)

Wire fencing was introduced at this time also, a stretch of 6 miles was tried experimentally and proved quite satisfactory.

The Tilsonburg and Delhi Viaducts were being rebuilt in more permanent materials.

The Tilsonburg Viaduct is 1287 feet long and 112 feet high.

The Delhi Viaduct is 1087 feet long and 90 feet high. These are the two largest structures on the Great Western Railway system.

During 1881 the pressure brought to bear by the Grand Trunk Railway upon the Directors and shareholders of the Great Western Ry increased so much, that the share holders gradually gave way and agreed to an amalgamation of the two companies, which finally took place on the 12th August 1882.

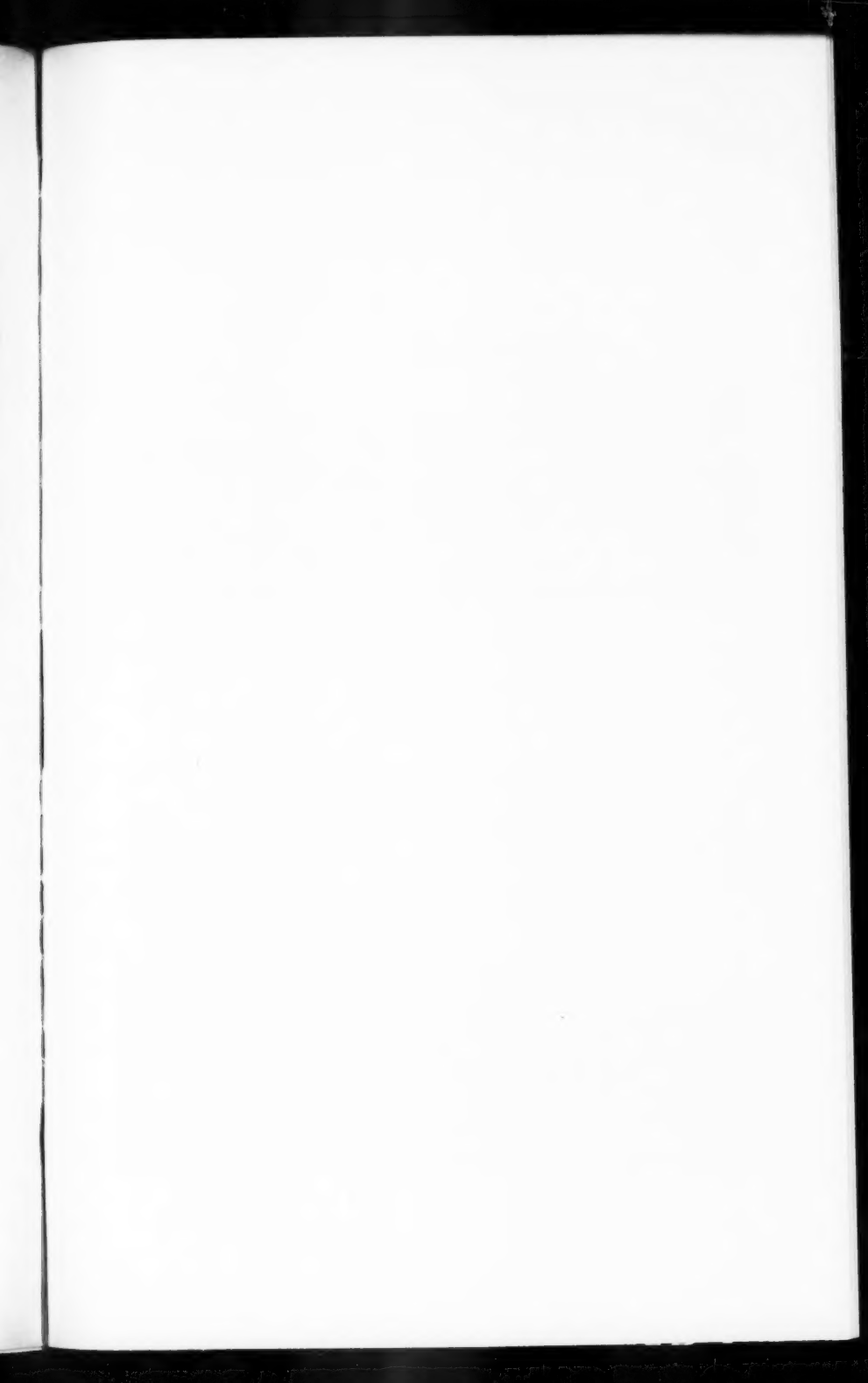
Great Western Railway mileage particulars.—

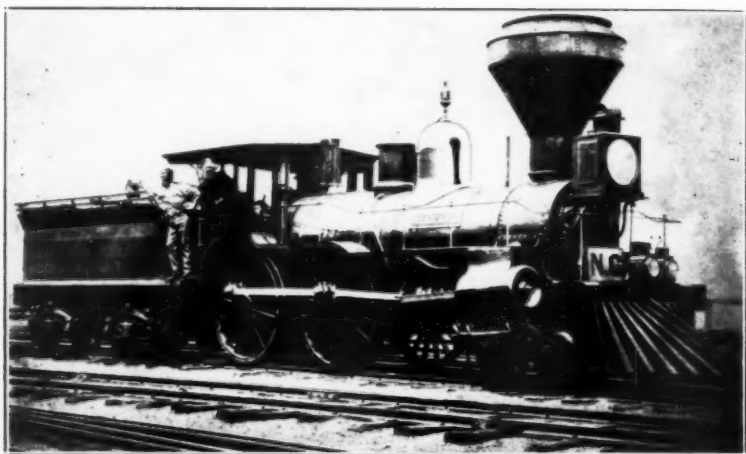
	miles
Suspension Bridge, Niagara, to Windsor on Detroit River, and including 14.5 miles of the Welland Railway leased to the Great Western Ry.	229.50
Hamilton & Toronto, branch	39.50
Glencoe Loop Line, to the International Bridge, Buffalo	145.50
Wellington, Grey & Bruce Ry.	111.00
Galt & Guelph Ry.	15.50
Galt Branch	2.50
Palmerston to Kincardine	67.00
Hyde Park Junction to Wingham Junction (London Huron & Bruce Ry.)	65.80
Komoka Junction to Sarnia	51.00
Petrolia Branch	5.50
London & Port Stanley Ry.	25.00
Tilsonburg Junction to Harrisburg	42.75

Note. There are slight discrepancies in the various mileage tables.

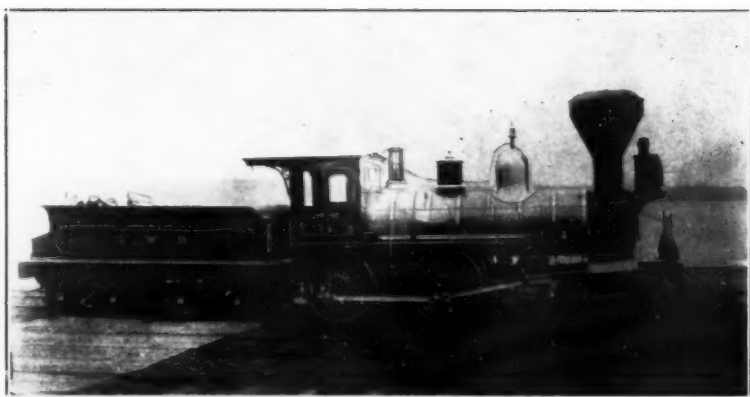
	Total	800.55
London Huron & Bruce Ry. (only leased)	less	68.80
		734.75

The greater part of the foregoing particulars of the history of the Great Western Railway of Canada, have been taken from the reports of the half yearly meetings of the Company.





G. W. Ry. "Niagara." Built by G. W. Ry., 1863. One of Eaton's last engines. Shown as Rebuilt.



G. W. Ry. "Brackstone Baker." Built by G. W. Ry., 1867.

THE GREAT WESTERN RAILWAY OF CANADA

List of Locomotives

This list is not official, but is based on the half yearly reports of the different Locomotive Superintendents of the G. W. R. and other sources.

Shop Number	Name	Actual or probable original Number	Number in 1862 List	Later Number	Description	Date
107.	"CANADA"	1.	24.		4-4-0 Passenger	1853
108.	"NIAGARA"	2.	27.		4-4-0 Passenger	1853
113.	"LONDON"	5.	28.		4-4-0 Passenger	1 May 1853
114.	"HAMILTON"	6.	25.		4-4-0 Passenger	1 May 1853

Built by the Lowell Machine Shops.

5 ft. 6 in. Gauge

Inside cylinders,

16" x 22"

Croton Hook motion valve gear,

Coupled wheels,

72"

The "Canada" & "Hamilton" appear to have been rebuilt during 1861 & 1862, and the "Niagara" & "London" scrapped, new engines being built to take their places.

"HERCULES"	3.	23.	4-4-0 Passenger	1853
"SAMSON"	4.	26.	4-4-0 Passenger	1853

Built by the Schenectady Locomotive Works.

5 ft. 6 in Gauge.

Inside cylinders,

16" x 22" or 24"

Croton Hook motion valve gear, ?

Coupled wheels,

72"

Instead of scrapping the "Hercules" in 1863, as was intended, the engine being found in fair condition was rebuilt with a fire engine on it and used as such until 1873, when it was again rebuilt as a Narrow Gauge Passenger engine, the "Samson" was apparently scrapped in 1863 and a new engine "Samson" built in place of it.

The following eight engines are referred to as Ballast or Shunting engines and were used with most of the foregoing engines in building of the road by the various contractors, they were too light for the work. They will appear later on in the list when rebuilt as an entirely different type of engine for the Narrow Gauge.

"ONTARIO"	7.	86.	4-4-0 Shunting	Sep 1853
"ERIE"	8.	87.	4-4-0 Shunting	Sep 1853
"SUPERIOR"	9.	88.	4-4-0 Shunting	Oct 1853
"MICHIGAN"	10.	89.	4-4-0 Shunting	Feb 1854
"ST. LAWRENCE"	11.	90.	4-4-0 Shunting	Nov 1853
"ST. CLAIR"	12.	91.	4-4-0 Shunting	Oct 1853
"HURON"	13.	92.	4-4-0 Shunting	Oct 1853
"SIMCOE"	14.	93.	4-4-0 Shunting	Feb 1854

Built by the Globe Works, Boston.

5 ft. 6 in. Gauge

Outside cylinders,
Coupled wheels,

15" x 20" or 22"
56" or 60"

123.	"ESSEX"	15.	11.	4-4-0 Passenger	Mar 1853
124.	"KENT"	16.	12.	4-4-0 Passenger	Mar 1853
125.	"ELGIN"	17.	13.	4-4-0 Passenger	Mar 1853
126.	"NORFOLK"	18.	14.	4-4-0 Passenger	Mar 1853
127.	"BRANT"	19.	15.	4-4-0 Passenger	Mar 1853
128.	"WENTWORTH"	20.	16.	4-4-0 Passenger	Mar 1853

Built by the Lowell Machine Shops.

5 ft. 6 in. Gauge.

Inside cylinders,

14" x 22"

Coupled wheels,

66"

V Hook Croton Valve gear.

Crank Axle,

dia 6"

Engine truck, double bearings, with compensating levers.

Boiler, diameter 3 ft. 6 in.

Firebox, 3 ft. 10 in. long, 4 ft. 3 in. wide, extending 3 ft. 6 in. below boiler shell, copper tube sheet $\frac{3}{4}$ " thick.

Tubes, 140 (copper) $1\frac{7}{8}$ " x 11 ft. long.

Tender, tank 30" high, capacity 1600 gallons.

Two tender trucks, each with four wheels 33" diameter, with outside bearings.

These engines were scrapped in 1867-68, and were replaced by new engines of mostly the same names for freight service.

"VENUS"	21.	17.	4-4-0 Passenger	1853
"VESTA"	22.	18.	4-4-0 Passenger	1853
"MINERVA"	23.	19.	4-4-0 Passenger	1853
"JUPITER"	24.	20.	4-4-0 Passenger	1853
"MERCURY"	25.	21.	4-4-0 Passenger	1853
"MARS"	26.	22.	4-4-0 Passenger	1853

Built by Norris, Philadelphia.

5 ft. 6 in Gauge.

Outside cylinders,

16" x 24"

Coupled wheels,

72"

These engines were to have been scrapped in 1870, but many of the engines which were considered worth reconstruction with new boilers on the Broad Gauge, were found unsuitable to convert to the Narrow Gauge, whilst others, namely the Norris class originally considered not worth reconstruction, are the most practicable to reconstruct to the N. G. All this class was rebuilt for the N. G. by early in 1873. The cylinders were originally 15 in diameter.

128.	"REINDEER"	27.	44.	4-4-0 Passenger	Dec 1853
129.	"ELK"	28.	45.	4-4-0 Passenger	Dec 1853
130.	"GAZELLE"	29.	46.	4-4-0 Passenger	Dec 1853
131.	"STAG"	30.	47.	4-4-0 Passenger	Dec 1853
132.	"ANTELOPE"	31.	48.	4-4-0 Passenger	Apr 1854
133.	"GREYHOUND"	32.	49.	4-4-0 Passenger	Apr 1854

Built by the Amoskeag Locomotive Company.

5 ft. 6 in. Gauge.

Inside cylinders,
Coupled wheels,
"Elk" first engine to cross the Niagara Falls Suspension Bridge.

16" x 22"
72"

These engines were either scrapped or sold during 1869 & 70 and new engines bearing the same names replaced them at that time.

"OXFORD"	33.	—.	4-4-0 Passenger	1853
"MIDDLESEX"	34.	1.	4-4-0 Passenger	Oct 1853
"LIGHTNING"	35.	2.	4-4-0 Passenger	Oct 1853
"DETROIT"	36.	3.	4-4-0 Passenger	Oct 1853
"LINCOLN"	37.	4.	4-4-0 Passenger	Oct 1853
"WINDSOR"	38.	5.	4-4-0 Passenger	Oct 1853
"CHATHAM"	39.	6.	4-4-0 Passenger	Oct 1853
"PARIS"	40.	7.	4-4-0 Passenger	Dec 1853
"WOODSTOCK"	41.	8.	4-4-0 Passenger	Dec 1853
"WELLAND"	42.	9.	4-4-0 Passenger	July 1854
"St. CATHERINES"	43.	10.	4-4-0 Passenger	Aug 1854
"	44.			

Built by the Schenectady Locomotive Co.

5 ft. 6 in. Gauge.

Inside cylinders,
Coupled wheels, chilled tyres,

15" x 22"
66"

The "Oxford" is believed to have been scrapped after the terrible accident at the Desjardins Canal bridge on 12th March 1857, and another engine name not known is also believed to have been scrapped on account of accident. Eight of these engines were rebuilt during 1865-66, but which they were and whether the others were scrapped or sold is not mentioned.

The following twenty engines built in England, were of the standard English Goods or Freight engine type, six wheels coupled, no truck, inside cylinders, connected to the middle axle.

They were good engines, and wore well, some of them being rebuilt to the Narrow Gauge, they were probably the most powerful engines on the line in the fifties.

Mr. Cameron says,—“that the wheels of these engines had chilled tyres, and that the boilers had copper fireboxes and tubes, which later were changed by the G. W. R. for those of Lowmoor Iron when the engines came in for heavy repairs. They were wood burners.”

"ATLAS"	45.	58.	0-6-0 Freight	Sep 1854
"PLUTO"	46.	59.	0-6-0 Freight	Oct 1854
"MILO"	47.	60.	0-6-0 Freight	Dec 1854
"ELEPHANT"	48.	61.	0-6-0 Freight	Dec 1854
"RHINOCEROS"	49.	62.	0-6-0 Freight	Nov 1854
"BUFFALO"	50.	63.	0-6-0 Freight	Nov 1854
"BISON"	51.	64.	0-6-0 Freight	Dec 1854
"PYTHON"	52.	65.	0-6-0 Freight	Dec 1854
"LION"	62.	66.	0-6-0 Freight	Dec 1855
"LIONESS"	63.	67.	0-6-0 Freight	Dec 1855
"TIGER"	64.	68.	0-6-0 Freight	Dec 1855

"TIGRESS"	65.	69.	0-6-0 Freight	Mar 1856
"LEOPARD"	66.	70.	0-6-0 Freight	Mar 1856
"PANTHER"	67.	71.	0-6-0 Freight	Feb 1856
"VULCAN"	68.	72.	0-6-0 Freight	Jan 1856
"ETNA"	69.	73.	0-6-0 Freight	Mar 1856
"STROMBOLI"	70.	74.	0-6-0 Freight	May 1856
"STYX"	71.	75.	0-6-0 Freight	Mar 1856
"CASTOR"	72.	76.	0-6-0 Freight	Dec 1856
"POLLUX"	73.	77.	0-6-0 Freight	Nov 1856

Built by Stothert, Slaughter & Co. in 1854-55, or
by Slaughter, Gruning & Co. in 1856,
Bristol, England.
(the same firm with a change of name.)

5 ft. 6 in. Gauge.

Inside cylinders,
Stephenson link motion,
Coupled wheels,

16" x 24"

60"

The "Python", "Lion", "Tiger", "Tigress", & "Vulcan" were
scrapped in 1871, ten were rebuilt as Narrow Gauge engines in 1873,
the rest were either sold or scrapped, names unknown.

"SPITFIRE"	53.	32.	2-4-0 Passenger	May 1855
"FIREBRAND"	54.	33.	2-4-0 Passenger	Aug 1855
"FIREKING"	55.	34.	2-4-0 Passenger	Oct 1855
"FIREFLY"	56.	35.	2-4-0 Passenger	Sep 1855
"HECATE"	57.	36.	2-4-0 Passenger	May 1855
"HECLA"	58.	37.	2-4-0 Passenger	Nov 1855
"GEM"	77.	38.	2-4-0 Passenger	Feb 1856
"RUBY"	78.	39.	2-4-0 Passenger	Mar 1856
"EMERALD"	79.	40.	2-4-0 Passenger	Aug 1856
"SAPPHIRE"	80.	41.	2-4-0 Passenger	Apl 1856
"DIADEM"	81.	42.	2-4-0 Passenger	Jan 1857
"DIAMOND"	82.	43.	2-4-0 Passenger	Apl 1857

Built by W. Fairbairn & Son, Canal St. Works, Ancoats,

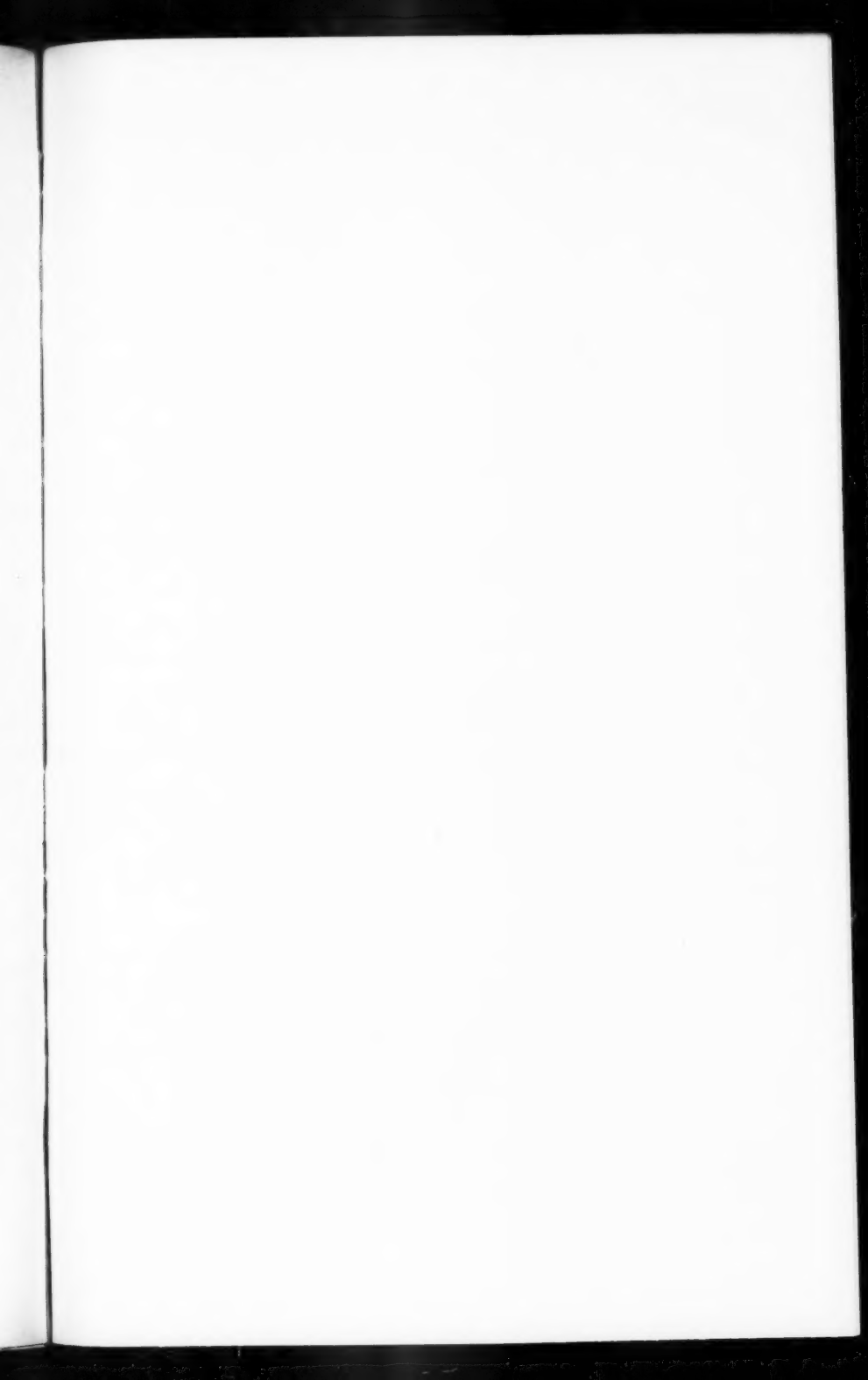
Manchester, England.
Inside cylinders,
Stephenson link motion,
Coupled wheels

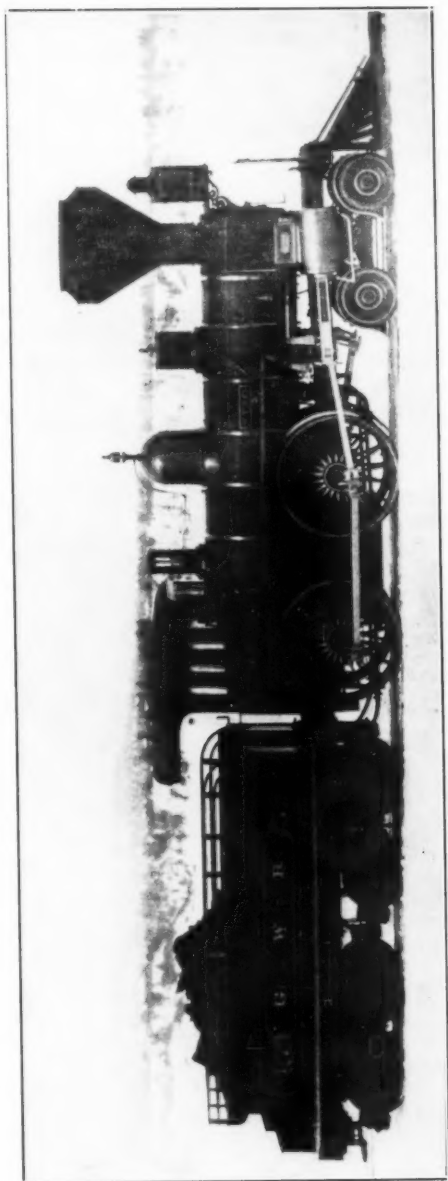
5 ft. 6 in. Gauge.

16" x 24"

72"

Mr. Richard Eaton, Locomotive Superintendent, in his report of
13th Aug 1858, says,—“After the most careful consideration, I have con-
cluded that a truck is an indispensable article to a quick running pas-
senger engine, in order to prevent pounding and destruction of track,
I therefor recommend its application to the Fairbairn and Stephenson
passenger engines which would then be equal to, if not superior to any
engines on the continent. I have hitherto been greatly averse to such
a change, on account of expense and because the old leading wheels
would be thrown aside as useless, but I can now perceive that such wheels
would come into full use for converting the present heavy four wheel
tenders of the Birkenhead and Stephenson engines into six wheel ones,
and also for replacing similar sized wheels under the Amoskeag tenders
which are now nearly worn out.”





G. W. Ry. "Stag." Built by G. W. Ry., 1868.

He reports that six of the Fairbairn large passenger engines were fitted with trucks in 1859 and the remainder in 1860, so that they became 4-4-0 type.

These engines were wood burners, and like all English engines appear to have had copper fireboxes and tubes which were later changed for Lowmoor iron.

The "Spitfire" was scrapped Feb 1871, but no record of the others of this class.

"AJAX"	59.	53.	4-4-0 Freight	Nov 1855
"TITAN"	60.	54.	4-4-0 Freight	Dec 1855
"MINOS"	61.	55.	4-4-0 Freight	Nov 1855
"MAZEPPA"	74.	29.	4-4-0 Passenger	Jan 1856
"MEDUSA"	75	30.	4-4-0 Passenger	Jan 1856
"MEDIA"	76.	31.	4-4-0 Passenger	Jan 1856

Built by Peto, Brassey, Betts & Jackson. Canada Works

Birkenhead, England	5 ft. 6 in. Gauge
Outside cylinders,	16" x 24"
Stephenson link motion,	
Coupled wheels,	66"

English built locomotives of that date were almost always six wheel engines, but as Mr. Eaton does not speak of them as 6 wheel I have recorded them as having a leading truck.

I am uncertain about the 3 passenger engines, their dates however follow on after the first lot, and the list of 1869 gives 2 lots of Birkenheads 3 engines Freight and 3 Passenger.

The "Minos" No. 55, was rebuilt at the Hamilton G. W. R. works in 1870, and renamed the "ADAM BROWN", as the engine was intended to work on the Wellington, Grey & Bruce Ry, which line was worked by the G. W. R. and opened the first section, July 1870. Mr. Adam Brown was a leading man in Hamilton and chairman of the W. G. & B. Ry.

They were wood burners. "Freight engine No 54 reported sold in Feb 1871." No further record of the rest of the class.

989.	"ARIEL"	83.	50.	2-4-0 Passenger	Oct 1856
990.	"OBERON"	84.	51.	2-4-0 Passenger	Dec 1856
991.	"PROSPERO"	85.	52.	2-4-0 Passenger	Oct 1856

Built by Robert Stephenson & Co. Ltd., Darlington England 5 ft. 6 in. Gauge

Inside cylinders, (blue print 15" x22")	16" x 24"
Stephenson link motion,	
Coupled wheels,	72"
Leading wheels,	48"
Diameter of boiler,	3 ft. 11 in.
Length of Smokebox,	2 ft. 6¾ in.
Length of barrel,	10 ft. 11 in.
Length of firebox,	4 ft. 3 in.
Heating Surface, tubes,	964 sq. ft.

Heating surface, firebox,	77 sq. ft.
Heating Surface, Total,	1041 sq. ft.
Area of firegrate,	13.3 sq. ft.
Length of coupled wheel base,	7 ft. 6 in.
Total wheel base,	15 ft.
Length of engine, (over buffer beams.)	23 ft. 6½ in.

Stephenson & Co report that three engines (which appear to be almost identical with the photograph of the "Prospero",) were built by them for the Grand Trunk Ry, (see photostat,) there is however no trace of these engines among G. T. R. records.

Undoubtedly there were certainly at least 3 Stephenson built locomotives on the G. W. R. although Stephensons say that they built nothing for the G. W. R. There may have been a mistake about this or a transfer from the G. T. R. to the G. W. R. One reference of 1869 speaks of 3 Passenger and 3 Freight of Stephenson build for the G. W. R.

Mr. Grant said that the "Ariel" & "Prospero" were sold to the Midland Ry.

"EREBUS"	86.	78.	Oct 1856
"CYCLOPS"	87.	79.	Oct 1856
"IXION"	88.	80.	Oct 1856

Built by (unknown, possibly Stephenson.) 5 ft. 6 in. Gauge.
No information at present about these engines.

4. ? "ACHILLES"	89.	56.	0-6-0 Freight	Aug 1857
5. ? "BACCHUS"	90.	57.	0-6-0 Freight	Sep 1857

Built by Daniel C. Gunn, Wellington St., Hamilton, Ontario 5 ft. 6 in. Gauge

Inside cylinders, 16" x 22"
Stephenson link motion,
Coupled wheels, 60"

These two engines were wood burners and were fitted with new boilers in 1870.

1. "GEO. STEPHENSON"	67.	81.	0-6-0 Freight	Jan 1860
2. "SCOTIA"	90.	82.	0-6-0 Freight	Jan 1861
3. "ERIN"	91.	83.	0-6-0 Freight	Feb 1861
4. "SARNIA"	92.	84.	0-6-0 Freight	Dec 1861
5. "SAXON"	93.	85.	0-6-0 Freight	Jan 1862

Built by the Great Western Railway Co., at the Hamilton Shops.

Mr. Richard Eaton, Locomotive Superintendent. 5 ft. 6 in. Gauge.
Inside cylinders, 16" x 24"
Stephenson link motion,
Coupled wheels, steel tyres. 60"

These were the first locomotives built by the G. W. R. and were designed for coal burning. The "Scotia" was the first engine in Canada and probably in America to have a steel boiler. The boilers of these en-

gines were especially designed to burn coal and were the result of a series of experiments by Mr. Eaton extending over some years with a view to substituting coal instead of cord-wood as engine fuel. The firebox had a water arch, projecting from near the top of the back sheet and extending downward below the lower row of flues. Mark's patent stack was fitted, this contained a series of flounces intended to regulate the draught, with a lubricator which gives a regular supply of oil to slide valves and cylinders. Another feature was a tubular feed water heater in the smokebox. Illustrations show these engines with very large and high straight stacks. Total heating surface, 1100 sq ft of which the tubes provided 100 sq ft. Eaton's patent water heater mentioned above consisted of a tube passing through from tank to firebox by which the water was heated, saving 15% of fuel. The 6 coupled wheels were of wrought iron, as also were the frames of the engine. The tender holds 2000 gallons of water. The cylinders were cast by Mr. Gartshore of Dundas, Ont.

It is doubtful if Mr. Eaton's efforts to use coal were successful, which is not surprising, as the attempts to use coal proved to be one of the greatest problems in early railway history the world over. It is to be noted that Mr. S. Sharp, who succeeded Mr. Eaton, reports in Feb. 1863 that he had altered the 5 engines back to wood burners, as the bad coal was seriously affecting the fireboxes and tubes. A photograph shows the "Scotia" with a wood-burner stack.

Mr. Grant, said he knew the "Sarnia" and "Saxon" on the Midland Ry. to which line they were sold by the G. W. R. as also was the "G. Stephenson."

6. ?	"LONDON"	28.	4-4-0 Pass. & Frt.	Mar 1862
7. ?	"NIAGARA"	27.	4-4-0 Pass. & Frt.	Jan 1863
8. ?	"SAMSON"	26.	4-4-0 Pass. & Frt.	Jun 1863
9. ?	" "	94.	4-4-0 Pass. & Frt.	Jun 1863

Built by the G. W. R. at the Hamilton Shops.

Mr. Richard Eaton, Loco. Superintendent.
Outside cylinders,
Coupled wheels,

5 ft. 6 in. Gauge.

About this time the engines of the Company averaged 28¾ miles per cord of wood.

The above new engines took the place of old engines of the same names, except the last of which name there is no record.

The "Samson" is believed to have been sold to either the Midland Ry. or the Northern Ry. of Canada, when the gauge of the G. W. R. was changed.

It is frequently mentioned in the reports that old engines were scrapped or sold but which engines they were is not recorded.

Between 1861 and 1866 all the 8 shunting engines were supplied with new boilers. They were referred to as tender engines.

Also between 1864 and 1866 eight of the Schenectady "Middlesex" class were rebuilt with new boilers, etc., among them was "Woodstock" No. 8, which while retaining the No. 8 was renamed "DAKIN," in honour of the President of the Company, Thomas Dakin, afterwards Sir Thomas. The remaining 2 engines of this class may have been scrapped or sold.

10.	"ESSEX"	11.	4-4-0 Freight	Oct 1867
11.	"KENT"	12.	4-4-0 Freight	Nov 1867
12.	"ELGIN"	13.	4-4-0 Freight	Dec 1867
13.	"BR'KST'NE BAKER"	14.	4-4-0 Freight	July 1867
14.	"BRANT"	15.	4-4-0 Freight	Mar 1868
15.	"WENTWORTH"	16.	4-4-0 Freight	Apr 1868

Built by the Great Western Railway at the Hamilton Shops.

Mr. W. A. Robinson, Mechanical Superintendent

Outside cylinders,

Coupled wheels,

5 ft. 6 in. Gauge.

16" x 24"

60" or 66"

These engines replaced the old Lowell engines of the same names and numbers, with the exception of the "Brackstone Baker" named after the Secretary of the Company.

68.		95.	4-4-0 Freight	Spring 1868
69.		96.	4-4-0 Freight	Spring 1868
70.		97.	4-4-0 Freight	Spring 1868
71.		98.	4-4-0 Freight	Spring 1868
72.		99.	4-4-0 Freight	Spring 1868

5 ft. 6 in. Gauge

Built by the Canadian Engine & Machinery Co., Kingston, Ontario.

The only data available is from the G. T. Ry. list of August, 1882, which refers to these five engines as of date 1872 with cylinders 16x24" and wheels 69". (This date 1872 may be wrong.)

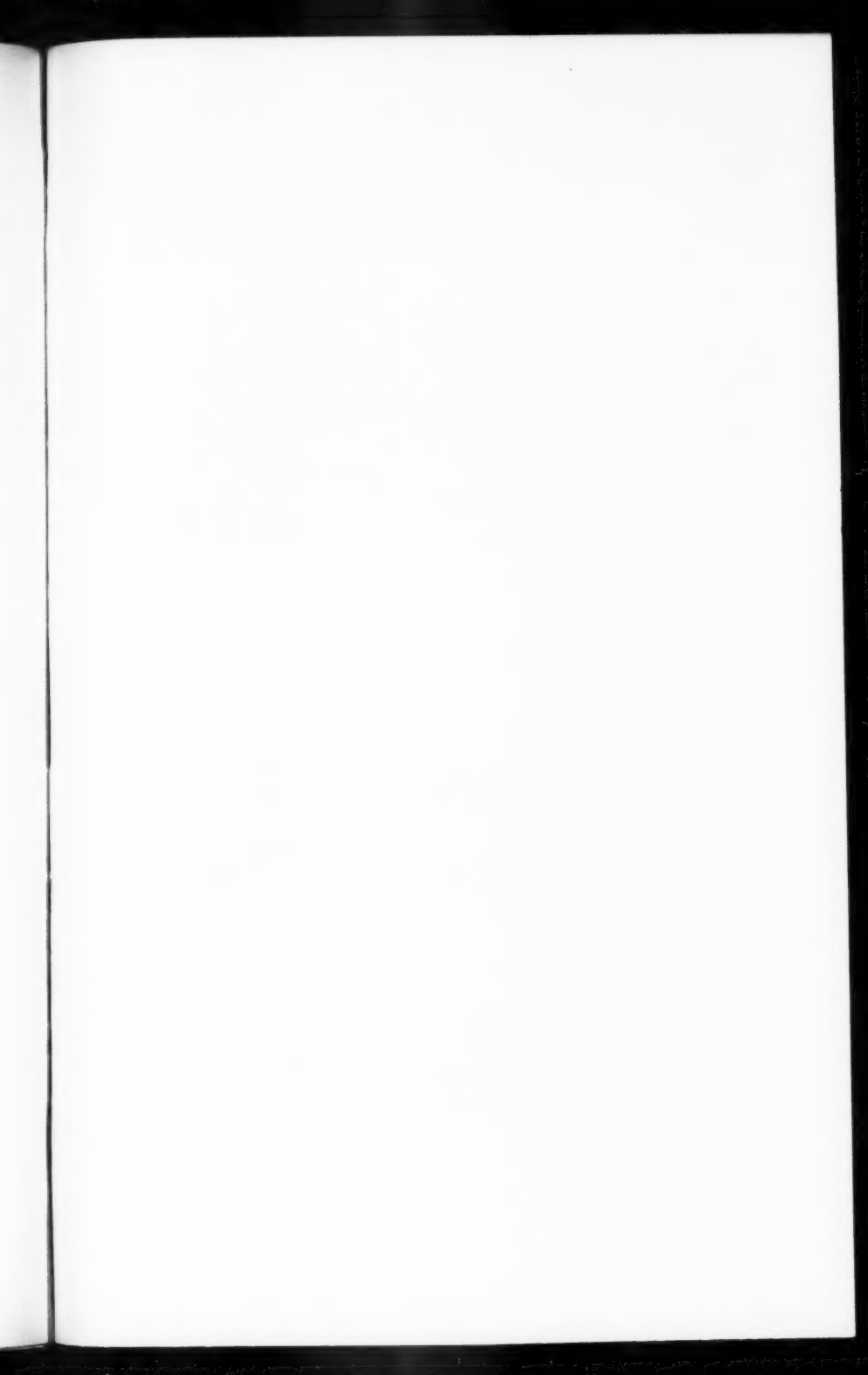
Mr. W. A. Robinson, Mechanical Superintendent, reports 18 August, 1868: "The five new freight engines constructed during the half year by the Canadian Engine & Machinery Co. of Kingston, Ontario, are all delivered and at work. They were constructed from drawings prepared in my own office and approved by the board." "They are similar in all essential parts to the new standard freight engines, built in our own works, with which their parts are interchangeable. The cost of the 5 new additional engines built at Kingston is £13869."

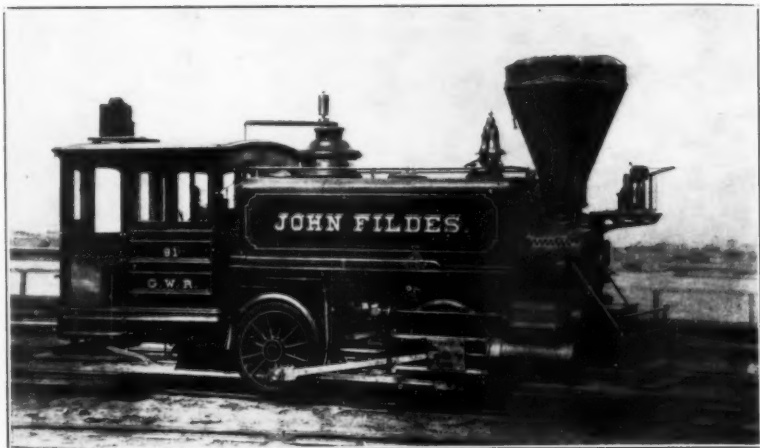
16.	"STAG"	47.	4-4-0 Passenger	Fall 1868
17.	"ELK"	45.	4-4-0 Passenger	Spring 1869
18.	"ANTELOPE"	48.	4-4-0 Passenger	Spring 1869
19.	"GREYHOUND"	49.	4-4-0 Passenger	Spring 1869
20.	"REINDEER"	44.	4-4-0 Passenger	Fall 1869
21.	"GAZELLE"	46.	4-4-0 Passenger	Fall 1869

Built by the Great Western Railway Company, at the Hamilton Shops.

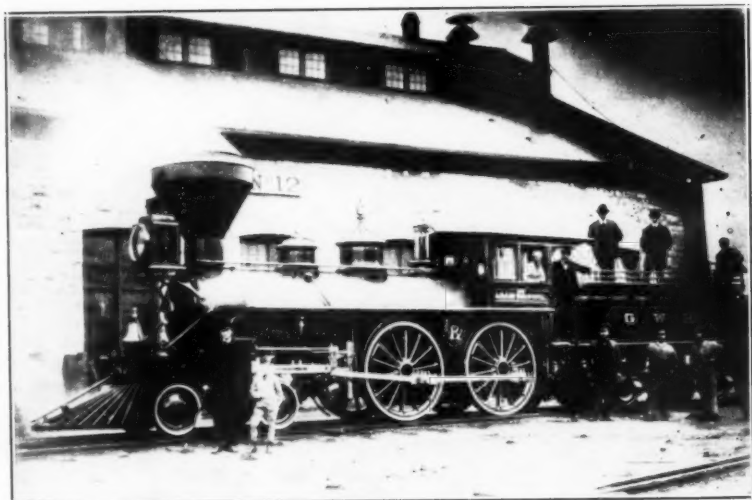
W. A. Robinson, Mechanical Superintendent.

5 ft. 6 in. Gauge.





G. W. Ry. "John Fildes." Built by Baldwin, 1870.



G. W. Ry. "Adam Brown." Built by Rhode Island, 1870.

Outside cylinders,	16" x 22"
Coupled wheels,	69"
Total weight of engine,	81000 lbs.
Weight on drivers,	51000 lbs.
Wheel base, engine,	20 ft. 11 in.
Wheel base, coupled wheels	7 ft. 6 in.
Wheel base, tender,	14 ft. 8 in.
Wheel base, engine & tender,	41 ft. 8 in.

These 6 new engines took the place of 6 old engines by the Amoskeag Locomotive Co., and so far as I can find out they were the last Broad Gauge engines built by the G. W. R. They were all sold as Broad Gauge engines in 1872, to the Northern Ry., which line converted them to standard gauge in 1878, and in 1888, when the Grand Trunk Ry. acquired the N. & N. W. Ry., the engines became the property of the G. T. R. The "Stag" had a new boiler in 1893, pressure 140 lbs. Five of them were scrapped between the years 1899 and 1903, the "Elk" was still working in 1904. No. 102, G. T. R.

The reason of their short life on the G. W. R. was that the G. W. R. was busy changing the gauge of the line, the Hamilton Shops were congested with the work of converting engines to the Narrow Gauge and new Narrow Gauge engines had to be bought in a hurry.

Two of the eight shunting engines were sold to the Northern Ry. of Canada in 1870, they were the "St. Clair" and "Simcoe," the others were converted to the Narrow or Standard Gauge 4 ft. 8½ in.

While changing the gauge of these engines, Mr. Robinson took the opportunity of rebuilding them into an entirely different type of engine, changing them from small 4-4-0 tender engines to 0-4-4 trailing truck Tank engines.

"ONTARIO"	86. Renamed "Geo. SMITH"	Rebuilt to N. G. Fall	1870
"ERIE"	87. Renamed "Wm. WEIR"	Rebuilt to N. G. Spring	1871
"SUPERIOR"	88.	Rebuilt to N. G. Fall	1870
"MICHIGAN"	89.	Rebuilt to N. G. Fall	1870
"ST. LAW'NCE"	90.	Rebuilt to N. G. Fall	1870
"HURON"	92. Renamed "Gil. Homan"	Rebuilt to N. G. Spring	1870

Rebuilt by the G. W. R. at the Hamilton Shops, 1870-1871
for the

4 ft. 8½ in. gauge.

So far as known the cylinder and wheel dimensions remained the same, also the outside connection.

The "Gilson Homan" was probably the first Narrow Gauge engine on the G. W. R. Smith, Weir and Homan were Directors of the Company.

These engines after their conversion were used on light passenger work on branch lines as well as shunting, but they were too light and small and did not last long. The "Gilson Homan" is believed to have finished up as a stationary engine for a cliff railway at Port Stanley.

22.	122.	4-4-0 Freight	Spring 1870
23.	123.	4-4-0 Freight	Spring 1870
24.	124.	4-4-0 Freight	Fall 1870
25.	125.	4-4-0 Freight	Fall 1870
26.	126.	4-4-0 Freight	Fall 1870

Built by the Great Western Ry. at Hamilton Shops.

Mr. W. A. Robinson, Loco. Superintendent.

Outside cylinders,

Coupled wheels,

4 ft. 8½ in. gauge.

16" x 24"

60"

These 5 engines were apparently the first Narrow Gauge engines built by the G. W. R. They had copper fireboxes, brass tubes and wrought iron driving wheels, thus reverting to the practice of the engines purchased in England in former years. They seem to have been successful engines. They were not named.

2209.	"JOHN FILDES"	91.	0-4-0	Shunting. Fall 1870
2941.		308.	0-4-0	Shunting. Sep 1872
2943		309.	0-4-0	Shunting. Sep 1872
2953.		310.	0-4-0	Shunting. Sep 1872
2954		311.	0-4-0	Shunting. Sep 1872
2959.		312.	0-4-0	Shunting. Oct 1872
2961.		313.	0-4-0	Shunting. Oct 1872
3060.		314.	0-4-0	Shunting. Dec 1872
3065.		315.	0-4-0	Shunting. Dec 1872
3073.		316.	0-4-0	Shunting. Dec 1872
3078.		317.	0-4-0	Shunting. Dec 1872
3349.		318.	0-4-0	Shunting July 1873
3353.		319.	0-4-0	Shunting July 1873
3358.		320.	0-4-0	Shunting July 1873
3374.		321.	0-4-0	Shunting Aug 1873

Built by the Baldwin Locomotive Works, Philadelphia, Penn.

for the

4 ft. 8½ in. gauge

Mr. John Fildes was a Director of the Company in 1871, and this engine named after him, seemed to have been in the nature of an experiment, as will be seen 10 more of the same class were ordered in 1872 and a further 4 in 1873. These engines were wood burners when built, but Mr. W. F. Baines said that when the change over to coal took place the weight on the rear end was too great and made the engine unsteady, so a trailing pony truck was added to support the coal bunker. Presumably wood was occasionally used even after the change was made as in the photo No. 208 still has the wood burner stack. Outside cyls. 14 x 24", wheels 44", weight 14 tons.

Nos. 101 to 125	1870.	13	4-4-0 Passenger engines. 4 ft. 8½ in. gauge.
Nos. 127 to 141	1871.	8	4-4-0 Passenger engines.
Nos. 189 to 203	1872.	8	4-4-0 Passenger engines.
207	1873.	1	4-4-0 Passenger engines.
305	1873.	1	4-4-0 Passenger engines.

31 Total number of passenger engines.

Built by the Rhode Island Locomotive Works, Providence, Rhode Island, U.S.A.

Outside cylinders,

Coupled wheels,

16" x 24"

69"

These Rhode Island engines were numbered on the system that the Passenger engines took the uneven numbers commencing at 101, and the freight engines the even numbers commencing at 102. There were however a few gaps which were filled in by engines of other builders.

With reference to the engine numbers it will be noticed that there is more than one apparent duplication of numbers, which I am at present unable to explain, for instance, in 1870 the G. W. R. built the 5 freight engines numbered 122, 123, 124, 125, 126, 4-4-0. These same numbers are used by the Rhode Island engines, some passenger and some freight also built in 1870.

As far as I can find out at present there appear to have been practically only two classes of these Rhode Island engines, viz: Passenger and Freight, both classes were of the same type, 4-4-0, with larger coupled wheels for the Passenger class as the principal difference.

The list of G. W. R. engines handed over by the G. W. R. to the G. T. R. at the time of the amalgamation, as compiled by Mr. R. R. Brown shows in some cases certain variations of size in cylinders and wheels but I believe that these must have been changes made during alterations or rebuilding, and were not the original dimensions.

Eight engines in the G. T. R. list are recorded as having 17 x 24" cylinders and three of them with 73½" wheels.

Mr. Robinson in his report of Feb. 1874, says "Two large Express Passenger engines have been received last half year and are now at work," but he does not say what engines they were, or if they were Rhode Island.

Nos. 102 to 138	1870	19	4-4-0 Freight engines	4 ft. 8½ in. gauge.
Nos. 150 to 192	1871.	22	4-4-0 Freight engines.	
Nos. 194 to 248	1872.	28	4-4-0 Freight engines.	
Nos. 148	1873.	1	4-4-0 Freight engines.	
Nos. 250 to 294	1873.	23	4-4-0 Freight engines.	
Nos. 296 to 386	1873.	36	4-4-0 Freight engines.	

129 Total Number of Freight Engines.

Built by the Rhode Island Locomotive Works, Providence, Rhode Island, U.S.A.	
Outside cylinders,	16" x 24"
Coupled wheels,	o 57" & 62"

The Rhode Island list of engines supplied to the G. W. R. gives 31 Passenger and 129 Freight engines total 160, and I have taken this as being correct, the G. W. R. records as per Mr. Robinson's reports give 31 Passenger and 127 Freight. The G. T. R. list of G. W. R. engines taken over in 1882, includes, 34 Passenger and 123 Freight Rhode Island engines. By 1882 of course one or two of these Rhode Island engines may have been scrapped as the result of accident, but there is absolutely no reason why the G. W. R. list should not tally with that of the builders. I am doubtful if systematic lists and records of the rolling stock were kept at that time, and some of Mr. Robinson's reports are vague and incomplete, so much so that I feel that the Rhode Island is much the more reliable list.

	G.W.R	G.T.R.		
27.	142.	722.	4-4-0 Passenger	May 1871
28.	143.	723.	4-4-0 Passenger	June 1871
29.	144.	724.	4-4-0 Passenger	July 1871
30.	145.	725.	4-4-0 Passenger	Sep 1871
31.	146.	726.	4-4-0 Passenger	Nov 1871
32.	147.	727.	4-4-0 Passenger	Nov 1871

Built by the Great Western Railway Company, at the Hamilton Shops.

Outside cylinders, 4 ft. 8½ in. gauge.
Coupled wheels, 16" x 24"
69"

The G. T. R. numbers, dates, cylinder and wheel dimensions are those appearing in the G. T. R. list.

These engines were originally intended to take the place of the 6 old Norris engines but when it was decided to rebuild the Norris to N. G., these new engines took the place of 5 old Slaughters and one Fairbairn. The numbers 142 to 147 fill a gap in Rhode Island numbers.

4-4-0 Passenger	Spring 1872
4-4-0 Passenger	Spring 1872
4-4-0 Passenger	Spring 1872

Built by the Canadian Locomotive Company, Kingston, Ontario.

4 ft. 8½ in. gauge

I have no record of any particulars of these engines.

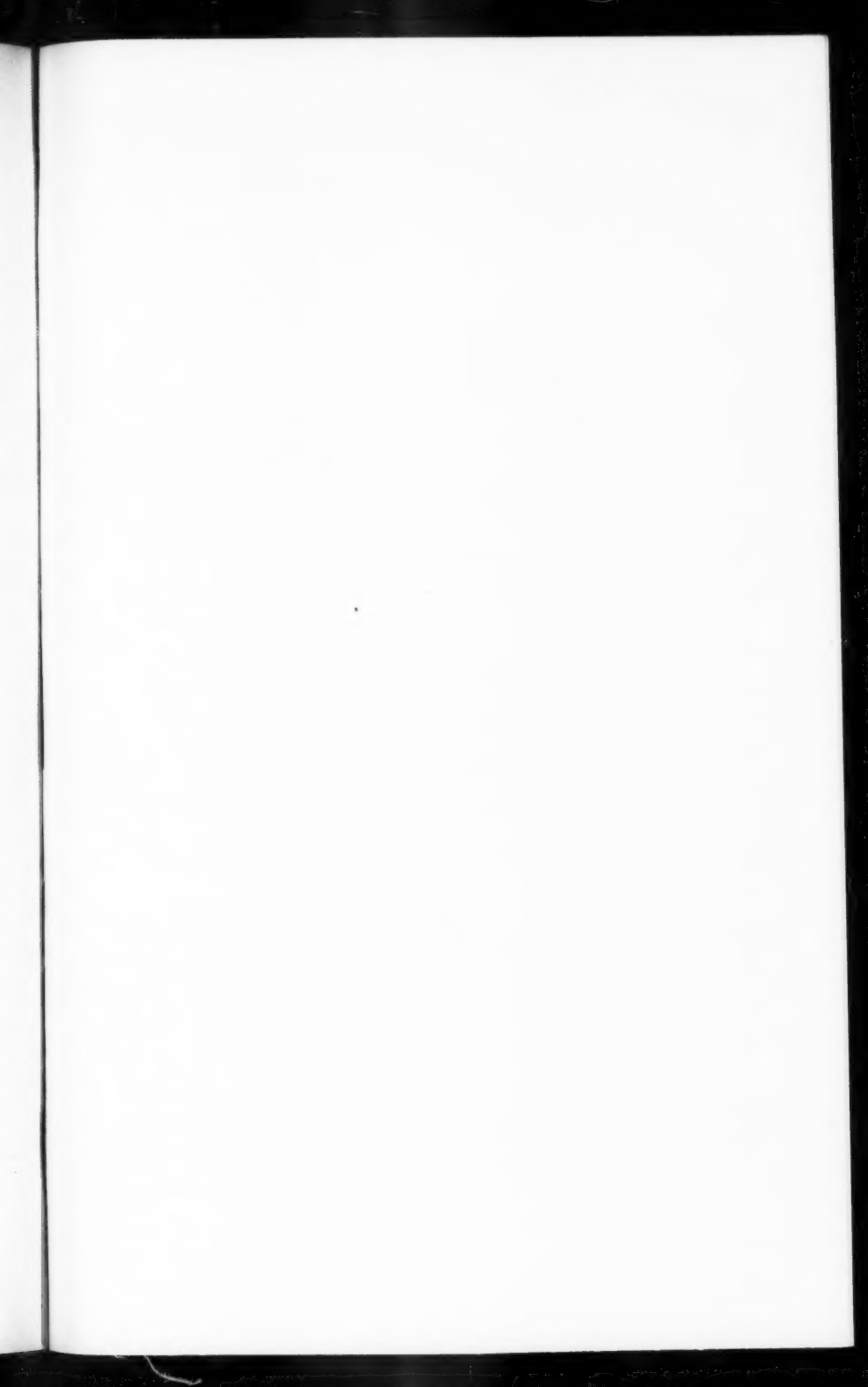
Mr. W. A. Robinson, Mechanical Superintendent, reports, 24th Aug. 1872: "During the half year, three new Narrow Gauge Passenger engines have been supplied from the Kingston Locomotive Works."

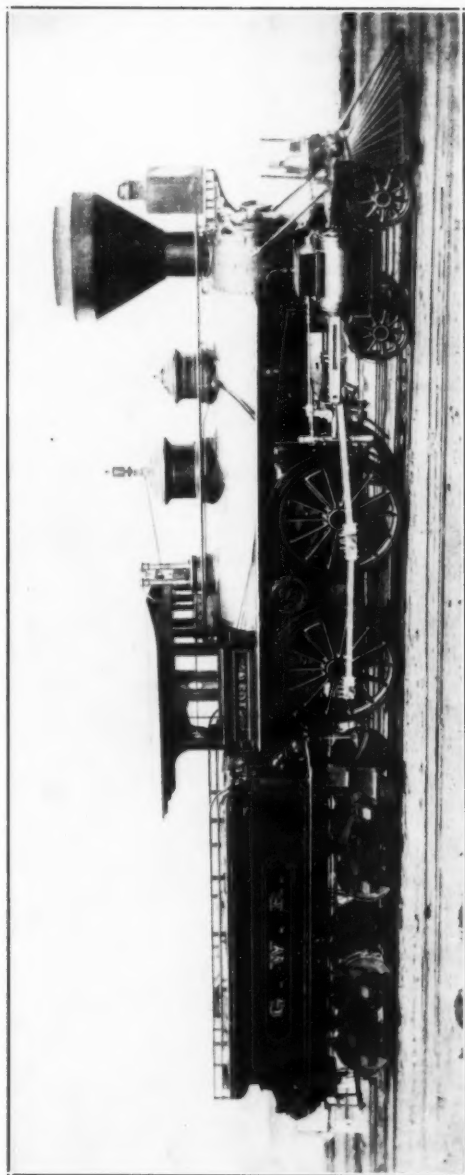
The Canadian Locomotive Co., writing 29th May 1931, say that they supplied 5 engines to the G. W. R. in 1868, and two engines 4-4-0 type in 1882, but they do not seem to know about these 1872 engines and admit that their records are very incomplete. At present I have no record of any engines supplied by them in 1882.

On the 28th Feb. 1873, Mr. Robinson reports: "One second hand Steam Car cost £207," he also refers to it again as "1 Steam Passenger Car." In his report, 27th Aug. 1873, he says: "The Steam Car used on the Petrolia Branch was accidentally destroyed (probably by fire), the engine and other useful portions will be utilized and the cost of the car deducted from Capital Account."

I have no particulars of this Steam Car.

Mr. John Cameron says in Oct. 1932: "the engine "Col. McGivern" was Narrow Gauge, and was one of the "Middlesex" class of the G. W. R., but I do not know which one, she was the only one not scrapped by the G. W. R. She was inside connected, Stephenson link motion, 4 wheels coupled with full truck in front, built by the Schenectady Co."





G. W. Ry. 102. Built by Rhode Island, 1870.

"Sold to the W. Hendrie Construction Co. and later sold to the Hamilton & Northwestern Ry. Co., and was running out of Hamilton to Barrie in passenger service until 1882, then taken to Toronto by the Northern Ry. Co., and later sold to some lumber company up North. I have done work on the engine often, she had 16 x 24" cylinders and wheels about 60". I believe that this engine "Col. McGivern" referred to by Mr. Cameron must have been sold by the G. W. R. at the time this "Middlesex" class was being rebuilt between 1863 and 1866. The fact that this engine afterwards belonged to the Northern Ry., points to the probability of her having remained Broad Gauge until a later date, in any case she must have ceased to be a G. W. R. engine.

This argument applies to the "Lincoln" No. 4, which I feel confident was sold by the G. W. R. to the London & Port Stanley Ry., as a Broad Gauge locomotive and was taken back into G. W. R. stock as "Lincoln" No. 4, Broad Gauge, when the L. & P. S. Ry. was absorbed by the G. W. R. in the Fall of 1872. The disposal of these two engines would account for the reduction of the "Middlesex" class from the ten mentioned in the 1862 list to the "8 engines of this class" as mentioned by Mr. Robinson in his report of August 1866. Mr. Robinson, also says in his report of 28th Feb. 1873: "one Broad Gauge engine was purchased from the London & Port Stanley Ry. for £1057." "During the half year in consequence of this Company leasing the London & Port Stanley Ry. and taking their rolling stock, one passenger engine has been acquired from that Company."

Which engine of the ten was afterwards the "Col. McGivern," I cannot say, but as six of them are accounted for later, (see Mr. Robinson's report of 27th Feb. 1874), as being (in addition to the "Lincoln" No. 4), the only Broad Gauge engines left on the G. W. R., there is a choice of three, viz: "Lightning" No. 2; "Detroit" No. 3; or "Windsor" No. 5.

Mr. R. R. Brown points out that this engine "Col. McGivern" 4-4-0, appears as an ex-G. W. R. engine in the list of locomotives of the Hamilton & North Western Railway. That she was used on construction of that railway to Allandale and was scrapped about 1880.

(Note:—Or was she about that date sold to the Northern Railway as Mr. Cameron suggests?)

Who Col. McGivern was and when his name was bestowed on the engine I do not know, or whether he was connected with the G. W. R.

Mr. Robinson reports, 27th Aug. 1873: "The whole of the Broad Gauge locomotives are now disposed of excepting 7 light passenger engines, Nos. 1, 4, 6, 7, 8, 9 and 10, which being serviceable engines, are laid aside for conversion to Narrow Gauge at a future time, unless previously disposed of to better advantage." (Note No. 4 is included with the above lot.)

Mr. Orttton, Acting Mechanical Superintendent, reports on the 7th Sep. 1875: "The old Broad Gauge engine from the London & Port Stanley Ry. has been broken up." (Note: This engine must have been the "Lincoln" and it is probable that it was the last Broad Gauge engine on the Great Western Railway.)

The 7 Broad Gauge engines mentioned above as being the last Broad Gauge engines left, though not reckoned in stock, would be according to the 1862 locomotive list as follows:

- No. 1 "Middlesex"
- No. 6 "Chatham"
- No. 7 "Paris"
- No. 8 "Woodstock," later renamed "Dakin."
- No. 9 "Welland"
- No. 10 "St. Catherines"
- and No. 4 "Lincoln," from the London & Port Stanley Ry.

(I believe the "Lincoln" was the last of these old engines to be broken up.)

The Great Western Railway Car Shops were removed from Hamilton to London, Ontario, in the Fall of 1874.

Mr. C. K. Domville, Locomotive Superintendent, in his report of 1st March 1877, says: "Two engines have been purchased during the half year at the cost of Renewal Fund, to replace two of the four small tank engines, which I mentioned in my last report were out of service."

(Note: I have no further information about these two engines.)

	Jan. 1877	July 1876	
Engines	54.	54.	
Passenger	143.	141.	(an increase of 2 engines.)
Freight	17.	21.	(a decrease of 4 engines.)
Shunting			
Totals	214.	216.	

In reference to the above table Mr. Domville remarks that: "It is not thought advisable to reconstruct these two (remaining shunting) engines just now, as the stock in hand is sufficient for present requirements."

(Note: From the above table it would appear as if the two new engines were freight engines, and not shunting engines as Mr. Domville's report would seem to indicate. The 4 small tank engines referred to must have been of the "Gilson Homan" class, the old Globe shunting engines.)

(Note: There is no change in the numbers or particulars of the locomotive stock until the 19th September 1878.)

Two small Tramway type 0-4-0, tank engines were bought in the Spring of 1878.

Built by the Baldwin Locomotive Works, Philadelphia, Penn., U.S.A.

	4 ft. 8½ in. gauge.
Outside cylinders,	10" x 12"
Stephenson link motion,	
Coupled wheels,	42"
Heating surface,	245 sq. ft.
Grate Area,	7.1 sq. ft.
Steam pressure,	130 lbs.
Weight on coupled wheels, (total weight)	22520 lbs.

Mr. Domville in his report of the 19th Sep. 1878, says: "Two small engines, (steam motors), have been purchased during the half year, to replace two of the four small tank engines which have been out of service for the last 4 years."

The Baldwin Locomotive Works, in their letter to me, of 16th Sep. 1932, after referring to the 14 four wheel shunting engines which they built for the G. W. R. between Sep. 1870 and Aug. 1873, say: "Our records show that we built no other locomotives for this road, with the exception of the two small motors of which we have already sent you a photograph." (Note the photograph shows a Tramway or Dummy type of tank engine.)

Mr. W. F. Baines in his letter to me of 3rd July 1936, referring to the steam car of Feb. 1873 (page 14) and these Dummy or Tramway engines, says: "The Steam Car was a little longer than the Dummy engines, which worked between Mimico and Toronto. There was a bad wreck with one of them, a freight engine with two vans hit the Dummy and 27 workmen were killed." "The longer one (presumably the Steam Car) worked between Wyoming and Petrolia, when the oil business was booming there, but Mr. J. Cameron does not know how it was obtained, whether it was new or second hand, but she was scrapped."

Mr. C. K. Domville, Locomotive Superintendent, reports on 6th Sep. 1879, that: "One of the large 17 inch cylinder Passenger engines, was rebuilt during the half year and fitted with a new boiler, firebox and tubes complete."

(Note: I am not sure if this engine was one of the Rhode Islands, but up to that date there does not seem to have been any mention of a G. W. R. engine with 17" cylinders, except the 3 Rhode Island engines.)

Mr. Domville in 8th Sep. 1880, reports in connection with engine repairs that: "Seven engines were rebuilt." (Note he does not give any information as to what engines these were or the extent of the rebuilding, so that it is impossible to judge as to whether the appearance of the engines was materially altered.)

200. 4-4-0 ? Freight or Passenger. Spring 1881
 Built by the Great Western Railway, at the Hamilton Shops. 4 ft. 8½ in. gauge.
 Outside cylinders, 17" x 24"
 Coupled wheels,

Mr. Domville, reporting on 16th Sep. 1881, after certifying that the rolling stock was in good order, says: "We have moreover manufactured one new large engine and tender complete for freight or passenger service, to replace one of the old obsolete type shunting engines." List of engines July 1881:

Passenger,	54
Freight,	144
Shunting,	16
Passenger Tanks,	2
Total	216

(Note: As the total of Passenger engines remains at 54, at which figure it had stood for the last few years, and as the number of the freight engines is now increased from 143 to 144, it seems evident that Mr. Domville reckoned this as a freight engine. It will be seen that the number of Shunting engines is reduced from 17 to 16.)

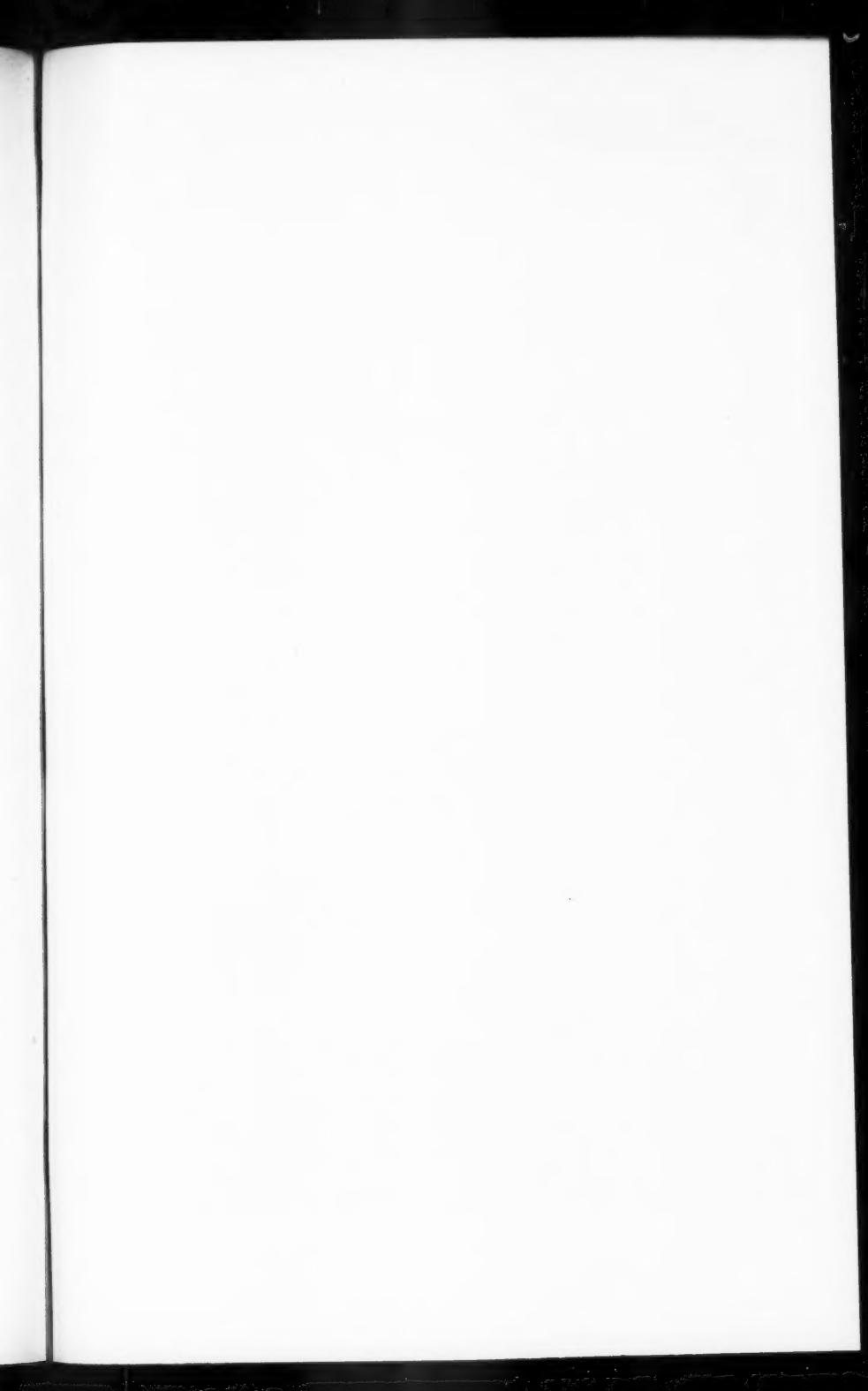
Cost per engine at this time is stated to be 8.95 pence per mile.

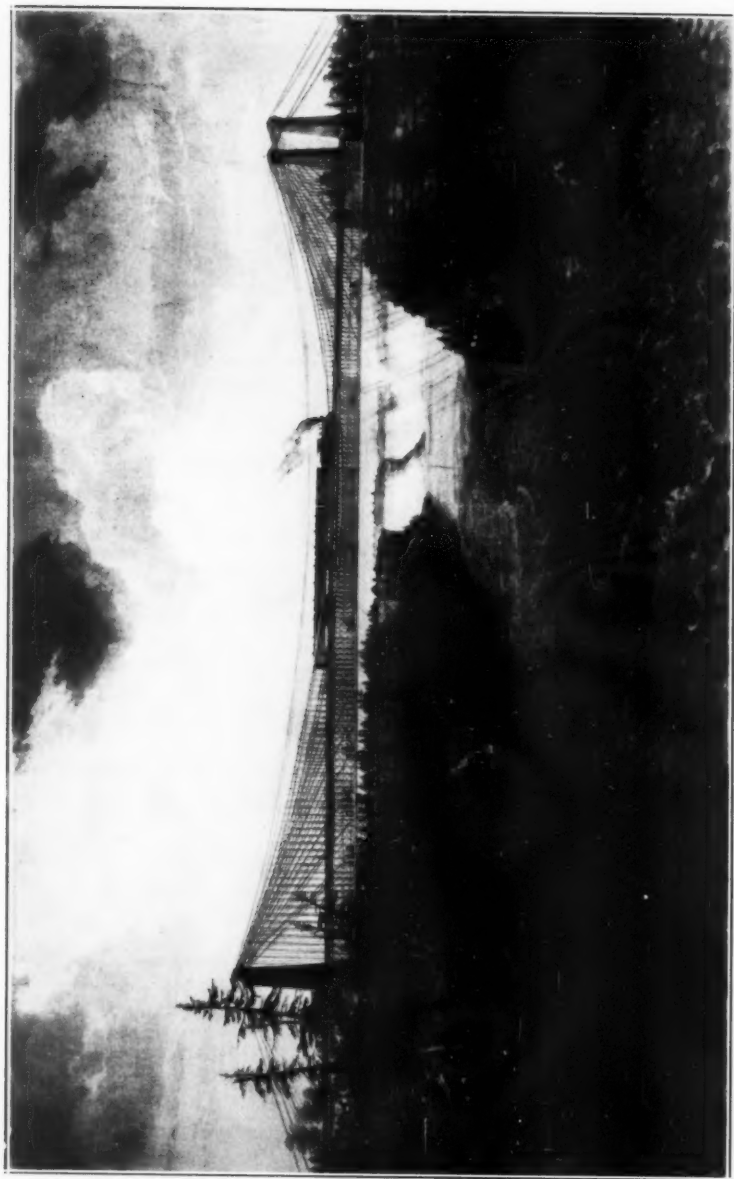
Mr. W. F. Baines, in his letter to me of the 11th Aug. 1937, says: "In Mr. Cameron's opinion, Mr. Domville only built two actually new engines, of which No. 200 was one and No. 901, a 0-4-2, saddle tank shunting engine, the other. He says that No. 200 was an engine built entirely on the Rhode Island pattern, but had cylinders 17 x 24". This engine, his son Charlie Domville ran." (as Engineer.)

901. Saddle Tank Shunting engine.
 0-4-2 or possibly 0-4-0 when built Spring 1882
 Built by the Great Western Railway, at the Hamilton Shops. 4 ft. 8½ in. gauge.

(Note: I have no particulars of this engine, there is no reference to it in the official reports, owing to the probability that the engine was not in service until after the amalgamation of the G. W. R. with the G. T. R.)

Mr. Baines in his letter of 17th July 1937, says: "Mr. Domville built a yard engine and it was modelled after the Baldwin ponies, the 4 wheel switchers, but it was about one third larger and ran as No. 901. They were called "ponies" by us as they were small in comparison with the road engines." (or was it because they had pony trucks fitted to them.) "When I started they all burned wood, later they were made to burn coal and it was only then that the pony truck with one pair of wheels was put under the coal box to carry the weight, originally they were 0-4-0." "The No. 901 was just about the time of the Grand Trunk taking over the G. W. R."





G. W. Ry. train crossing International Suspension Bridge over the Niagara River.

(Note: In the list of engines taken over by the Grand Trunk Ry. from the G. W. R. it will be noticed that this engine No. 901, is recorded as being an 0-4-0 tank engine, with cylinders 14" x 24", and wheels 44", and built by the G. W. R. in Sep. 1873. These are exactly the same dimensions and practically the same date as the Baldwin engines. I do not feel that this date, Sep. 1873 can be correct. I imagine that 1883 would be nearer the mark, certainly if it is correct that Domville designed and built the engine, he did not take office as Locomotive Superintendent, until early in 1876.)

"EMPRESS"	728.	4-4-0 Passenger	Spring and Fall 1882
"PRINCESS"	729.	4-4-0 Passenger	Spring and Fall 1882
"DUCHESS"	730.	4-4-0 Passenger	Spring and Fall 1882

Built by the Great Western Railway, at the Hamilton Shops. 4 ft. 8½ in. gauge.
 Outside cylinders, 19" x 24" ?
 Coupled wheels, 73½"

(Note: There is no official record of these engines, as it is evident that they were not finished in time to be in service on the G. W. R. before the amalgamation with the Grand Trunk on the 12th of August 1882. It will be noticed that there is no increase in the number of passenger engines in the following table.)

The Grand Trunk list of G. W. R. engines taken over gives the names, numbers and dimensions of these three engines as given above, also it gives the dates as follows, viz: "Empress," Oct. 1887; "Princess" July 1888, and "Duchess" Aug. 1888. These dates seem most unlikely, because if the engines were commenced in 1882, (which is the latest date at which they could be reckoned as G. W. R. engines) how could they take 3 or 4 years to complete, (1887 and 1888) ?

(Note: The numbers of these three engines are the Grand Trunk numbers; they were given by that Company.)

Mr. W. F. Baines writing the 11th Aug. 1937 says: "Mr. Domville intended to build 6 passenger engines but only three were sanctioned, the "Empress" No. 728, "Princess" No. 729 and "Duchess" No. 730, and they were just about ready at the time of the amalgamation. I fired the "Duchess" for about 19 or 20 months. One half of the engine frame was slab and the other half square frame. The engines were not entirely satisfactory."

It is reported that the "Princess" was in a bad accident at Gourock near Guelph in 1889 and was never rebuilt but scrapped.

Mr. C. K. Domville, Mechanical Superintendent, reports in 1882 that the following engines were in stock at January 1882:

Passenger,	54
Freight,	144
Shunting,	16
Passenger Tanks,	2
Total	216

(Note: This is the last report of the Locomotive Department of the Great Western Railway of Canada. The amalgamation of the G. W. R. and the Grand Trunk Ry. took place on the 12th August 1882.)

Shop Numbers	Original G.W.R. Numbers	Later G.W.R. Numbers	Grand Trunk Numbers	Description Suburban Type Saddle Tank	Date of Rebuilding
	126.	528.	828.	4-4-2	About 1882 to 1884
	128.	529.	829.	4-4-2	1882 to 1884
Built by the Rhode Island Locomotive Works, about Dec. 1872, for the G. W. R.					4 ft. 8½ in. gauge.
Rebuilt by the G. W. R. as Saddle tank engines as above.					17" x 24"
Outside cylinders, Coupled wheels,					57"

(Note: There is no reference to the rebuilding of these two Rhode Island freight engines as saddle tanks, in the official reports, there is no mention of them in the Locomotive tables issued with the reports for the closing years of the G. W. R., the two passenger tanks which are shown, being the two small tramway engines. These two engines together with others already mentioned were rebuilding at the time of the amalgamation, and were too late to be classed as G. W. R. engines in their rebuilt form.)

Mr. W. F. Baines in his letter of 3rd July 1936, says: "Re the Suburban Tanks 4-4-2 you speak of, these were converted by Mr. Domville, who used two Rhode Island freight engines and made tanks out of them somewhere about 1884. Mr. Cameron says: "One of them was Rhode Island No. 128, and the other was No. 126, I think, but not sure." Mr. Baines further says, "that these engines were not new as Mr. Domville used the frames, wheels, rods, cylinders, stacks, &c., of the two Rhode Island engines, extended the frame at the back and put a coal box on it, together with a water tank with a rounded top over the boiler and turned them out as Nos. 528 and 529."

Shop No.	G.W.R. No.	Probable G.T.R. No.		
	217.	773.	4-4-0 Freight	Jan. 1883
	218.	839.	4-4-0 Freight	Jan. 1883
	219.	882.	4-4-0 Freight	Jan. 1883
231.	220.	758.	4-4-0 Passenger	Jan. 1883
232.	221.	759.	4-4-0 Passenger	Jan. 1883

Built by the Canadian Locomotive Co., Kingston, Ontario. 4 ft. 8½ in. gauge.

The 217, 218 and 219 had outside cylinders 17 x 24"; coupled wheels 60", with straight top boilers.

The 220 and 221 had outside cylinders 18 x 24"; coupled wheels 66" or 73" with wagon top boilers.

The above data was furnished by Mr. W. F. Baines who knew these engines well. The builders have record of the 220 and 221 but not of

the other three, but their records are incomplete. Although these engines were built for the G. W. R. it is a question whether they ever ran as G. W. R. locomotives, even if they were delivered in 1882.

AUTHOR'S ADDENDUM

Referring to the eight engines—"Ontario," "Erie," "Superior," "Michigan," "St. Lawrence," "St. Clair," "Huron" and "Simcoe," built by the Globe Works, Boston in 1853, which are spoken of in the reports, first as Ballast and later as Shunting engines, I would like to make the following statement:

Very little in the way of description is given on these engines but they are mentioned as having tenders. I therefore, took it for granted that they were of the 4-4-0 type, viz: 4 coupled driving wheels with a 4 wheel truck.

When the narrow gauge came I considered that their conversion from the 4-4-0 type to 0-4-4 tank engines was accomplished by reversing the wheel arrangements and the frames which might not have been too difficult.

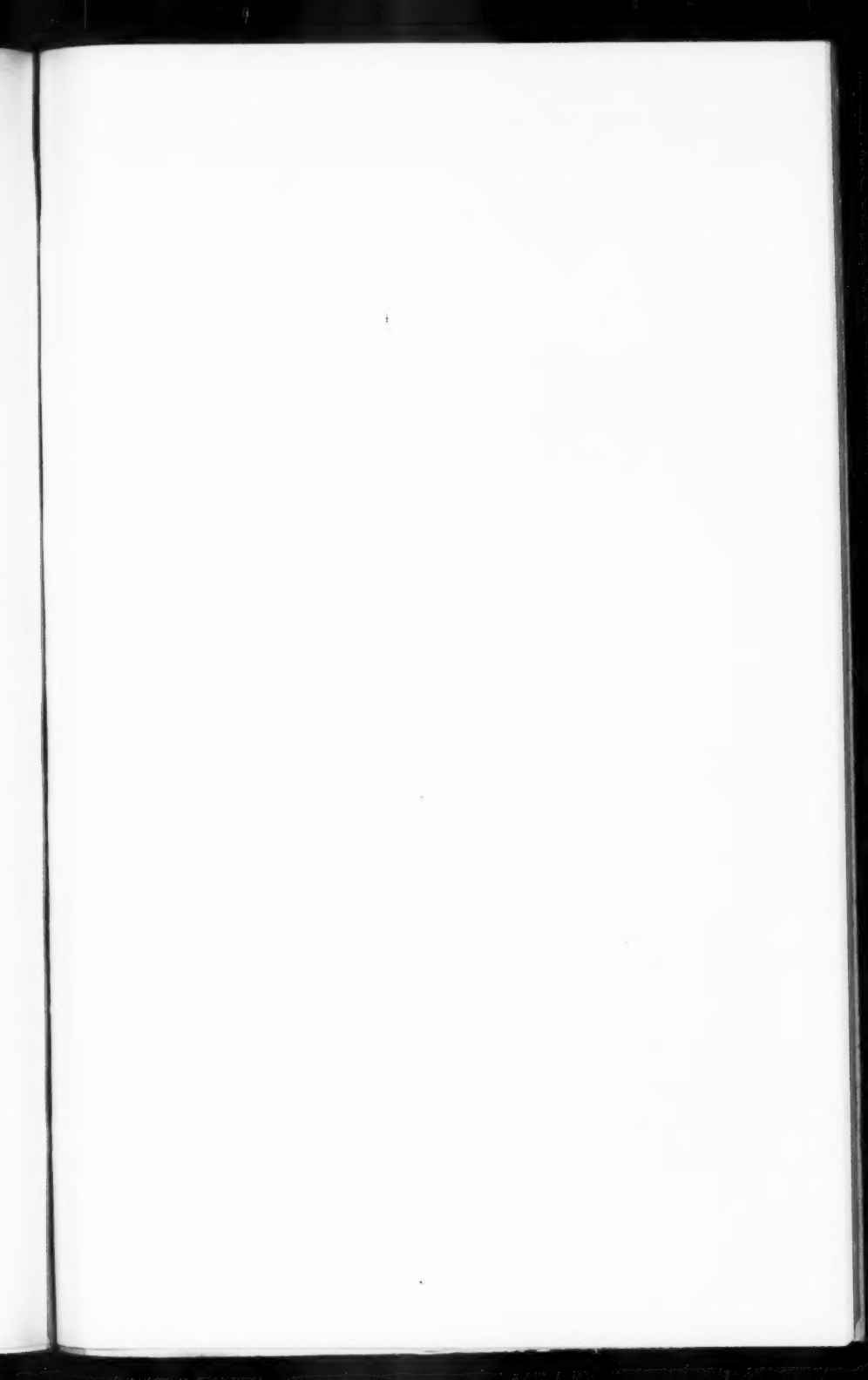
Lately however, a photograph of the Niagara Suspension Bridge, believed dated 1862 has come into my possession. This shows a small four wheel engine with four wheel tender pulling a passenger train across the bridge. If this engine is G. W. R. (and no doubt it is because the G. W. R. leased and worked the railway portion of the bridge) and assuming it is one of the Globe engines, then it appears probable that these eight shunting engines were of the 0-4-0 type in their original form.

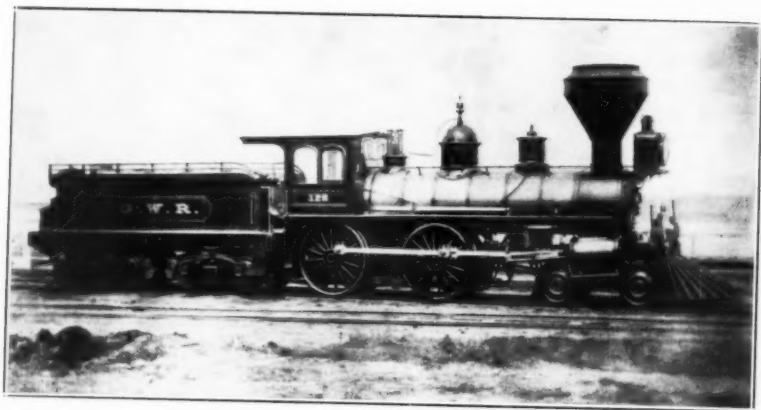
In conclusion I should like to express my sincere thanks to many who have helped me with information on the subject of the Great Western Railway of Canada, among whom I specially mention:

Mr. John Cameron, Mr. W. F. Baines, the late W. J. Grant, all of Hamilton; Mr. Chas. E. Fisher, Boston, The Ry. & L. Hist. Society; Mr. John Loye, Mr. R. R. Brown, Mr. D. Angus, (Loan of Tackabury's Atlas of the Dom. of Can.) and other members of the Canadian Railroad Historical Association; The Canadian National Rys., Publicity Department; Mr. W. G. Larmour, Norfolk, Va.; Mr. B. Thomas, Nashua, N. H.; Mr. W. H. Breithaupt, C. E., Kitchener, Ont.; Mr. O. J. Morris, London, England; The "Hamilton Spectator."

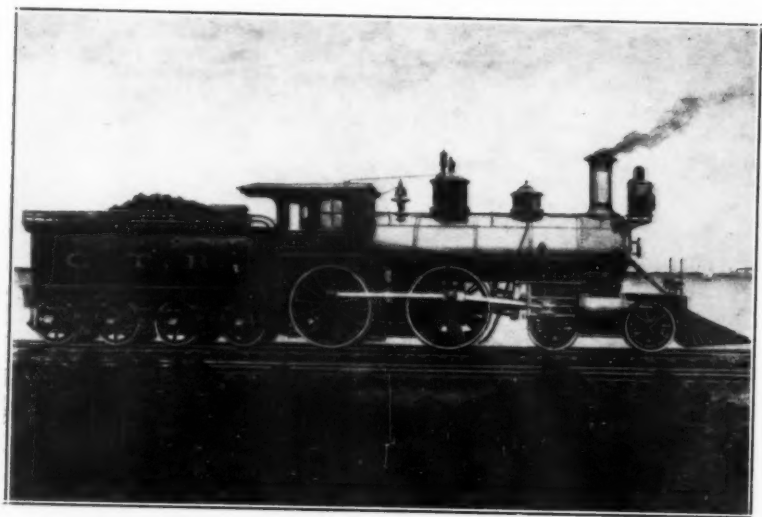
List of Locomotives acquired by the Grand Trunk Ry., from the Great Western Ry., of Canada on the amalgamation of the two railways in August, 1882. This list was compiled by Mr. R. R. Brown, from the official records and presented to the author for use in this publication.

Date		Builder	G.T.R. No.		
1870	Aug.	Great Western Railway	767	16 x 24"	62"
1870	Aug.	Great Western Railway	768	16 x 24"	62"
1870	Aug.	Great Western Railway	769	16 x 24"	62"
1870	Aug.	Rhode Island	701	17 x 24"	69"
1870	Aug.	Rhode Island	702	17 x 24"	69"
1870	Aug.	Rhode Island	703	16 x 24"	68"
1870	Aug.	Rhode Island	708	16 x 24"	69"
1870	Aug.	Rhode Island	709	16 x 24"	69"
1870	Aug.	Rhode Island	710	16 x 24"	68"
1870	Aug.	Rhode Island	711	16 x 24"	68"
1870	Aug.	Rhode Island	712	16 x 24"	68"
1870	Aug.	Rhode Island	713	16 x 24"	69"
1870	Sep.	Great Western Railway	770	16 x 24"	62"
1870	Sep.	Great Western Railway	771	16 x 24"	62"
1870	Sep.	Baldwin	902	14 x 24"	44"
1870	Sep.	Rhode Island	704	16 x 24"	69"
1870	Sep.	Rhode Island	705	16 x 24"	68"
1870	Sep.	Rhode Island	706	16 x 24"	68"
1870	Sep.	Rhode Island	761	16 x 24"	57"
1870	Sep.	Rhode Island	762	16 x 24"	62"
1870	Sep.	Rhode Island	775	16 x 24"	57"
1870	Sep.	Rhode Island	793	16 x 24"	57"
1870	Oct.	Rhode Island	757	16 x 24"	68"
1870	Oct.	Rhode Island	763	16 x 24"	62"
1870	Oct.	Rhode Island	764	16 x 24"	62"
1870	Oct.	Rhode Island	765	16 x 24"	57"
1870	Dec.	Rhode Island	707	16 x 24"	69"
1870	Dec.	Rhode Island	756	16 x 24"	68"
1870	Dec.	Rhode Island	772	16 x 24"	62"
1870	Dec.	Rhode Island	774	16 x 24"	62"
1870	Dec.	Rhode Island	776	16 x 24"	57"
1870	Dec.	Rhode Island	777	16 x 24"	57"
1870	Dec.	Rhode Island	778	16 x 24"	57"
1870	Dec.	Rhode Island	779	16 x 24"	57"
1870	Dec.	Rhode Island	780	16 x 24"	57"
1871	Apr.	Rhode Island	714	16 x 24"	69"
1871	Apr.	Rhode Island	715	16 x 24"	68"
1871	May	Rhode Island	716	16 x 24"	69"
1871	May	Rhode Island	717	16 x 24"	69"
1871	May	Rhode Island	781	16 x 24"	57"
1871	May	Rhode Island	783	16 x 24"	62"
1871	May	Great Western Ry.	722	16 x 24"	69"
1871	June	Great Western Ry.	723	16 x 24"	69"
1871	June	Rhode Island	718	16 x 24"	68"
1871	June	Rhode Island	719	16 x 24"	68"
1871	June	Rhode Island	784	16 x 24"	57"
1871	June	Rhode Island	785	16 x 24"	57"
1871	June	Rhode Island	786	16 x 24"	57"
1871	June	Rhode Island	787	16 x 24"	57"
1871	June	Rhode Island	788	16 x 24"	57"
1871	July	Rhode Island	720	16 x 24"	69"
1871	July	Rhode Island	721	16 x 24"	69"





G. W. Ry. 126. Built by G. W. Ry., 1870.



G. T. Ry. "Duchess." Built by G. W. Ry., 1882. Drawn by W. G. Larmour.

1871	July	Great Western Ry.	724	16 x 24"	69"
1871	Sep.	Great Western Ry.	725	16 x 24"	69"
1871	Sep.	Rhode Island	789	16 x 24"	62"
1871	Sep.	Rhode Island	790	16 x 24"	57"
1871	Nov.	Rhode Island	791	16 x 24"	57"
1871	Nov.	Rhode Island	792	16 x 24"	62"
1871	Nov.	Great Western Ry.	726	16 x 24"	69"
1871	Nov.	Great Western Ry.	727	16 x 24"	69"
1871	Dec.	Rhode Island	794	16 x 24"	62"
1871	Dec.	Rhode Island	795	16 x 24"	57"
1871	Dec.	Rhode Island	796	16 x 24"	62"
1871	Dec.	Rhode Island	797	16 x 24"	62"
1871	Dec.	Rhode Island	798	16 x 24"	62"
1871	Dec.	Rhode Island	799	16 x 24"	57"
1872	Jan.	Rhode Island	800	16 x 24"	62"
1872	Jan.	Rhode Island	801	16 x 24"	62"
1872	Jan.	Rhode Island	802	16 x 24"	57"
1872	June	Kingston L. W.	734	16 x 24"	69"
1872	July	Kingston L. W.	735	16 x 24"	69"
1872	July	Kingston L. W.	736	16 x 24"	69"
1872	Aug.	Kingston L. W.	737	16 x 24"	69"
1872	Aug.	Kingston L. W.	738	16 x 24"	69"
1872	Aug.	Rhode Island	803	16 x 24"	57"
1872	Aug.	Rhode Island	804	16 x 24"	57"
1872	Sep.	Rhode Island	745	16 x 24"	69"
1872	Sep.	Rhode Island	805	16 x 24"	57"
1872	Sep.	Rhode Island	806	16 x 24"	62"
1872	Sep.	Rhode Island	807	16 x 24"	57"
1872	Sep.	Rhode Island	808	16 x 24"	57"
1872	Sep.	Rhode Island	809	16 x 24"	57"
1872	Sep.	Rhode Island	810	16 x 24"	57"
1872	Sep.	Rhode Island	811	16 x 24"	57"
1872	Sep.	Rhode Island	812	16 x 24"	57"
1872	Sep.	Kingston	739	16 x 24"	69"
1872	Sep.	Kingston	740	16 x 24"	68"
1872	Sep.	Kingston	741	16 x 24"	68"
1872	Oct.	Rhode Island	746	17 x 24"	73½"
1872	Oct.	Rhode Island	747	17 x 24"	69"
1872	Oct.	Rhode Island	748	17 x 24"	69"
1872	Oct.	Rhode Island	749	17 x 24"	68"
1872	Oct.	Rhode Island	750	17 x 24"	68"
1872	Oct.	Kingston	742	17 x 24"	68"
1872	Oct.	Kingston	743	17 x 24"	69"
1872	Nov.	Kingston	744	17 x 24"	68"
1872	Nov.	Rhode Island	751	17 x 24"	69"
1872	Nov.	Rhode Island	752	17 x 24"	73½"
1872	Nov.	Rhode Island	813	16 x 24"	62"
1872	Nov.	Rhode Island	814	16 x 24"	57"
1872	Nov.	Rhode Island	815	16 x 24"	62"
1872	Nov.	Rhode Island	816	16 x 24"	62"
1872	Nov.	Rhode Island	817	16 x 24"	62"
1872	Nov.	Rhode Island	818	16 x 24"	62"
1872	Nov.	Rhode Island	819	16 x 24"	62"
1872	Nov.	Rhode Island	820	16 x 24"	57"
1872	Dec.	Rhode Island	821	16 x 24"	57"
1872	Dec.	Rhode Island	822	16 x 24"	57"
1872	Dec.	Rhode Island	823	16 x 24"	57"
1872	Dec.	Rhode Island	824	16 x 24"	57"
1872	Dec.	Rhode Island	825	16 x 24"	62"
1872	Dec.	Rhode Island	826	16 x 24"	57"
1872	Dec.	Rhode Island	827	16 x 24"	57"

1872	Dec.	Rhode Island	828	4-4-2T	17 x 24"	57"
1872	Dec.	Rhode Island	829	4-4-2T	17 x 24"	57"
1872	Dec.	Rhode Island	830		16 x 24"	57"
1873	Jan.	Baldwin	894	0-4-0T	14 x 24"	44"
1873	Jan.	Baldwin	895	0-4-0T	14 x 24"	44"
1873	Jan.	Baldwin	896	0-4-0T	14 x 24"	44"
1873	Jan.	Baldwin	909	0-4-0T	14 x 24"	44"
1873	Jan.	Rhode Island	831		16 x 24"	62"
1873	Mar.	Rhode Island	832		16 x 24"	62"
1873	Mar.	Rhode Island	833		16 x 24"	62"
1873	Mar.	Rhode Island	834		16 x 24"	62"
1873	Mar.	Rhode Island	835		16 x 24"	62"
1873	Mar.	Rhode Island	836		16 x 24"	57"
1873	Mar.	Rhode Island	837		16 x 24"	62"
1873	Apr.	Rhode Island	755		17 x 24"	69"
1873	Apr.	Rhode Island	838		16 x 24"	62"
1873	Apr.	Rhode Island	840		16 x 24"	57"
1873	Apr.	Rhode Island	841		16 x 24"	57"
1873	Apr.	Rhode Island	842		16 x 24"	57"
1873	Apr.	Rhode Island	843		16 x 24"	57"
1873	Apr.	Rhode Island	844		16 x 24"	57"
1873	Apr.	Rhode Island	884		16 x 24"	57"
1873	Apr.	Rhode Island	885		16 x 24"	57"
1873	Apr.	Rhode Island	886		16 x 24"	68"
1873	May	Rhode Island	845		16 x 24"	57"
1873	May	Rhode Island	846		16 x 24"	57"
1873	May	Rhode Island	847		16 x 24"	57"
1873	May	Rhode Island	848		16 x 24"	57"
1873	May	Rhode Island	849		16 x 24"	57"
1873	May	Rhode Island	850		16 x 24"	57"
1873	May	Rhode Island	851		16 x 24"	57"
1873	May	Rhode Island	852		16 x 24"	57"
1873	May	Rhode Island	853		16 x 24"	57"
1873	May	Rhode Island	854		16 x 24"	57"
1873	May	Rhode Island	855		16 x 24"	57"
1873	May	Rhode Island	856		16 x 24"	57"
1873	Aug.	Baldwin	897	0-4-0T	14 x 24"	44"
1873	Aug.	Baldwin	898	0-4-0T	14 x 24"	44"
1873	Aug.	Baldwin	899	0-4-0T	14 x 24"	44"
1873	Aug.	Baldwin	900	0-4-0T	14 x 24"	44"
1873	Sep.	Great Western Ry.	901	0-4-0T	14 x 24"	44"
1873	Sep.	Rhode Island	857		16 x 24"	57"
1873	Sep.	Rhode Island	858		16 x 24"	57"
1873	Sep.	Rhode Island	859		16 x 24"	57"
1873	Sep.	Rhode Island	860		16 x 24"	57"
1873	Sep.	Rhode Island	861		16 x 24"	57"
1873	Sep.	Rhode Island	862		16 x 24"	57"
1873	Sep.	Rhode Island	863		16 x 24"	57"
1873	Sep.	Rhode Island	864		16 x 24"	57"
1873	Sep.	Rhode Island	865		16 x 24"	57"
1873	Sep.	Rhode Island	866		16 x 24"	57"
1873	Sep.	Rhode Island	867		16 x 24"	57"
1873	Oct.	Rhode Island	868		16 x 24"	57"
1873	Oct.	Rhode Island	869		16 x 24"	57"
1873	Oct.	Rhode Island	870		16 x 24"	57"
1873	Oct.	Rhode Island	871		16 x 24"	57"
1873	Oct.	Rhode Island	872		16 x 24"	57"
1873	Oct.	Rhode Island	873		16 x 24"	57"
1873	Oct.	Rhode Island	874		16 x 24"	57"
1873	Oct.	Rhode Island	875		16 x 24"	57"
1873	Oct.	Rhode Island	876		16 x 24"	57"

1873	Oct.	Rhode Island	877	16 x 24"	57"
1873	Oct.	Rhode Island	878	16 x 24"	57"
1873	Oct.	Rhode Island	879	16 x 24"	57"
1873	Oct.	Rhode Island	880	16 x 24"	57"
1873	Oct.	Rhode Island	881	16 x 24"	57"
1873	Oct.	Rhode Island	887	16 x 24"	57"
1873	Oct.	Rhode Island	892	16 x 24"	57"
1873	Oct.	Rhode Island	893	16 x 24"	57"
1873	Oct.	Baldwin	903 0-4-0T	14 x 24"	44"
1873	Oct.	Baldwin	904 0-4-0T	14 x 24"	44"
1873	Nov.	Baldwin	905 0-4-0T	14 x 24"	44"
1873	Nov.	Baldwin	906 0-4-0T	14 x 24"	44"
1873	Nov.	Baldwin	907 0-4-0T	14 x 24"	44"
1873	Nov.	Baldwin	908 0-4-0T	14 x 24"	44"
1873	Nov.	Rhode Island	753	16 x 24"	69"
1873	Nov.	Rhode Island	754	16 x 24"	73½"
1873	Nov.	Rhode Island	766	16 x 24"	62"
1873	Nov.	Rhode Island	888	16 x 24"	57"
1873	Nov.	Rhode Island	889	16 x 24"	57"
1873	Nov.	Rhode Island	890	16 x 24"	57"
1873	Nov.	Rhode Island	891	16 x 24"	57"
1878	May	Baldwin	760 0-4-0T	10 x 12"	44"
1881	July	Great Western Ry.	782	17 x 24"	62"
1882	Feb.	Kingston	883	16 x 24"	62"
			Ex Welland Ry #5		
1883	Jan.	Kingston	773	17 x 24"	62"
1883	Jan.	Kingston	758	17 x 24"	73½"
1883	Jan.	Kingston	759	17 x 24"	73½"
1883	Jan.	Kingston	839	17 x 24"	62"
1883	Jan.	Kingston	882	17 x 24"	62"
1887	Oct.	Great Western Ry.	728	19 x 24"	73½"
			"Empress"		
1888	July	Great Western Ry.	729	19 x 24"	73½"
			"Princess"		
1888	Aug.	Great Western Ry.	730	19 x 24"	73½"
			"Duchess"		

In Memory of

DR. H. C. FALL
Tyngsboro, Massachusetts
Who died on Nov. 14, 1939.

B. B. SHARRETT
P. O. Box 424
Bristol, Virginia
Who Died on Nov. 18, 1939.

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The Railway and Locomotive Historical Society, Inc.

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In addition to the above numbered bulletins, the Society has produced the following bulletins without numerical assignment:

- Locomotives of the Chicago, Burlington & Quincy R. R., 1904-1935, Part I.
- Locomotives of the Chicago, Burlington & Quincy R. R., 1855-1904, Part II.
- Locomotives of the Chicago & North Western Railway, 1848-1938.
- Locomotives of the Atchison, Topeka & Santa Fe System, 1869-1939.
- "Documents Tending to Prove the Superior Advantages of Railways and Steam Carriages over Canal Navigation," by Col. John Stevens. Published in 1812. Fac-simile reprint.
- The Railroads of Wisconsin.

An index of the material that appeared in the first thirty bulletins issued by this Society will be found in Bulletin No. 30. The material appearing in Bulletins 31-42 incl. is indexed in Bulletin No. 42.

THE NEW YORK FAIR

Through the courtesy of the President's Committee of the Association of American Railroads, this Society has again been honored by being asked to continue its exhibit at the Fair.

Certain changes and improvements will be made over what was exhibited last year. Already we have learned that the Baltimore & Ohio R. R. will exhibit under our auspices the fragment of the nameplate of the locomotive "Locomotion," built by George Stephenson in 1825. This is probably one of the most unique as well as rare an item as exists in this country.

In talking with Mr. Coughtry recently, other additions were mentioned which are bound to be of interest and value to the exhibit. On the other hand the exhibit is by no means closed and any of our members, regardless of distance, who feel that they have something of interest and who are willing to exhibit same under our auspices are urged to get in touch with Mr. W. J. Coughtry, Director, World's Fair Historical Exhibit, 15 Sylvan Place, Nutley, New Jersey.

Our New York Chapter will take an active part not only in assisting Mr. Coughtry prepare the exhibit but it is our hope to have some one present during each week end. So, even if you are unable to lend anything to the exhibit, your services will be appreciated—the door is wide open to all and the Society will deeply appreciate your co-operation.

